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## Abstract Book

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# Abstracts

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1 A UNITED EUROPE OF EVERYDAY OBJECTS: EXPLORING OUR INTERTWINED PAST THROUGH MEDIEVAL MATERIAL CULTURE (AD 1000-1600)

Session theme: 1. On artefacts and beyond  
Session format: Regular session  
Session keywords: small finds, material culture, pan-European, inter-regional, everyday people  
Session organisers: Michael Lewis (British Museum) – Jakub Sawicki (Academy of Sciences of the Czech Republic) – Maria Vargha (University of Vienna) – Saša Čaval (Research Centre of the SAZU)

SESSION ABSTRACT

This session builds on the success of the previous discussions at earlier EAA conferences, which explored other pan-European perspectives on medieval small finds. This time, we turn our focus to the shared and diverse experiences of medieval life, emphasising the ability of material culture - especially metal finds - to reveal the interconnected nature of European societies between AD 1000 and 1600. Building upon the analytical, theoretical, and methodological frameworks explored previously, this session invites contributions that transcend traditional scholarly boundaries. We particularly welcome contributions that look at how small finds reveal connections across local, regional, and national boundaries, both in the medieval period and in the modern study of these objects. Topics could include typological studies, insights into materiality, manufacturing processes, trade, or case studies of specific object types or sites. Papers that use these objects to explore larger patterns of exchange and interaction across Europe are particularly encouraged. Our goal is to continue building a fuller picture of Europe’s medieval past by showing how different aspects of material culture can reflect both the unity and diversity of life in this period. By exploring the intertwined connections between objects and the people who made and used them, this session seeks to highlight the shared histories and unique stories embedded in the everyday metal objects of medieval material culture.

CONTRIBUTION ABSTRACTS

546. INVISIBLE CONNECTIONS? A SOCIO-ARCHAEOLOGICAL AND HISTORICAL INTERPRETATION ON NON-HERALDIC SIGNET RINGS FROM MEDIEVAL WALLACHIA

Contribution format: Oral  
Contribution authors: Alexandru Morintz (Vasile Pârvan Institute of Archaeology) – Marian Coman (University of Bucharest)

There is a vast and continuously increasing literature on the late medieval and early modern heraldic rings. These rings, often extremely valuable and very skilfully crafted, were sometimes included in lists of dowries, assets, or wills. The owners were of high status, as they used these heraldic rings as a visual sign of their identity that could be impressed by sealing. What about non-heraldic rings made of alloys with a lower percentage of silver or, in some cases, just bronze or copper? In Wallachia, for example, these are significantly more numerous than gold and silver signet rings. Although the design and techniques of making these rings could differ, they can be grouped by sharing some similar features. Thus, some rings are undoubtedly signet rings because their ornaments and/or inscriptions are engraved as a mirror image to appear correctly when sealed. Also, some rings could be used as signet rings when the original meaning of the ornaments (supplications, amulets, and so on) has been changed or simply forgotten. Who were the people who wore these rings? Our socio-archaeological and historical discussion is based on several signet rings recently recovered from a medieval burial ground from Wallachia (Buftea – La Cârna/Mănești archaeological site, near Bucharest), dating between the end of the 14th century and the beginning of the 17th century. The new finds are compared with other signet rings already known, especially from Wallachia, Moldavia, and Dobrudja, but also from Hungary, Serbia, and Bulgaria. Our paper aims to inquire into the practical usage of these rings and the social status of their owners.

1092. CLASPS AND OTHER DRESS-FASTENERS IN MEDIEVAL AND EARLY MODERN BURIALS OF TRANSYLVANIA

Contribution format: Oral  
Contribution authors: Peter Levente Szocs (County Museum Satu Mare)

Clasps and other similar items used for dress-fastening form a rather large assembly of finds coming from late medieval and early modern burials from churchyard cemeteries of Transylvania. These finds are usually perceived as indicators of clothing and indirectly the status of deceased, an assumption which is generally based on the variety of materials and production techniques used. The comparative overview of finds discovered in rural and in urban cemeteries reveals, however, that several local particularities exist, and burial customs differs

according to the age and the gender of the deceased, too. Furthermore, the material of the discovered clasps varies from common metals to the noble one, and from the simplest forms of bent wire to more sophisticated forms of decorative plates. All these factors might suggest patterns of production and trade, and overall can be taken in consideration in order to establish the chronology and functionality of particular items.

1647. “ÖVPÁLCA” – A UNIQUE GARMENT-RELATED SMALL FIND FROM THE LATE MEDIEVAL PERIOD IN THE CARPATHIAN BASIN

Contribution format: Oral  
Contribution authors: Orsolya Zay (Institute of Hungarian Research)

Most researchers dealing with medieval archaeology in Hungary have encountered the group of objects that often emerges from metal detector research, but so far, no larger, comprehensive summary has been published on the topic. We also have issues with the basics: exactly what is this object, and what could it have been used for in the 15th-16th centuries? The object is clearly a wearable element, representing late medieval belt wear-customes. The “rod”, primarily made of bronze, appears not only as a mass-produced item but we also know of decorated examples made of bone and silver. However, it is puzzling that despite its frequent occurrence, we see little of it in contemporary visual representations. Could it be an ethnic marker or an element characteristic of social groups? In Hungarian costume research, it somehow has been left out of focus so far,even though it is quite a common phenomenon. With this presentation, we would like to bring into focus a group of objects that seems to be specifically from the Carpathian Basin, which appeared in present-day Hungary, Slovakia, and Romania. Additionally, we aim to reconstruct through experimental archaeological methods how our ancestors might have worn this special type of belt.

2382. A SCABBARD BEHIND THE BELT, OR THE HISTORY OF KNIFE SCABBARDS AS EXEMPLIFIED BY ARCHAEOLOGICAL FINDS FROM GDAŃSK (POLAND)

Contribution format: Oral  
Contribution authors: Rafal Openkowski – Jan Jarosz (Nicolaus Copernicus University in Torun)

In the urbanization process of medieval cities, craftsmanship played a special role. An active component of this process was, among others, the production of leather goods, which included scabbards made, among others, by leather craftsmen from leathers of various thicknesses. Most of them were simple forms of various lengths and widths, sewn together in the middle or on the side, sometimes with metal fittings. Some of them were decorated on the outer surface, and those decorated on both sides (back and front) were definitely rare. In this last category of monuments in Europe, there are even more unique examples decorated with a punch. With this tool among others, there was made a horizontally spread flower calyx (it is difficult to determine what flower it was today, but in the symbolism of the Middle Ages it was probably legible to everyone) or a stylized lily resembling the lily of the King of France. The leather of the scabbards in question is thick, which allowed for the ornament to be deeply impressed, making the pattern legible and plastic.

2038. A WITNESS TO EVERYDAY LIFE – A PATTEN FROM ELBLĄG’S OLD TOWN

Contribution format: Oral  
Contribution authors: Mikolaj Dobek – Tomasz Kozłowski (Nicolaus Copernicus University in Toruń) – Urszula Sienkowska (The Archaeological and Historical Museum in Elbląg)

In 2022, examples of medieval protective footwear known as pattens were discovered in Elbląg’s Old Town, a former Hanseatic port city. These wooden overshoes were designed to facilitate movement over muddy side-walks, preventing leather footwear from coming into contact with wet surfaces. Over time, their construction and choice of materials evolved to better suit changing conditions. During the excavations, several pattens were uncovered, including one particularly well-preserved example. Signs of wear, such as worn-out soles, footprints on the surface, and particles of sand embedded in the bases, indicate prolonged use. The analysis of this artifact provides valuable insights into its production and history. The exceptional state of preservation not only enables a detailed study of its construction and function but also offers a rare opportunity to explore the craftsmanship and biomechanical considerations of medieval footwear design. Additionally, it indirectly sheds light on the patten’s owner, including possible postural defects. This study underscores the full analytical potential of such artifacts, emphasizing the crucial role of interdisciplinary collaboration in heritage and material culture research.

2334. HOW TO JUDGE A BOOK BY ITS COVER: BOOKBINDING IN LATE MEDIEVAL CENTRAL EUROPE – A PRELIMINARY REPORT

Contribution format: Oral  
Contribution authors: Zsuzsa Peto (HNM Public Collection Centre, Hungarian National Museum)



This paper is inspired by a recently unearthed collection of stamps that were used to embellish book covers during the late fifteenth to early sixteenth centuries. In addition to these stamps, a variety of other bookbinding tools were uncovered by metal detectorists in late autumn, 2024. The primary aim of this investigation is not only to delve into the material aspects and usage of these finds but also to elucidate their archaeological significance and reconstruct the spatial and cultural context of their provenance, which is the Pauline monastery of St. Catharine located in the village of Göncruszka, Northeastern Hungary. This region is renowned as one of the earliest rural centres of book printing, particularly at Vizsoly, which shares a close historical connection with the emergence of early Protestant movements in the area. The discovery of these artefacts illuminates the varying temporal, cultural, and religious layers that have influenced the dissemination of book culture and the practices surrounding book use. While there are numerous catalogues detailing various forms of book cover decoration, systematic examples of what is referred to as Hungarian binding are primarily documented in early printed books and manuscripts housed within Hungarian libraries, all meticulously collected by Mariann Rozsondai. At this stage of research, contextualising these finds poses a challenge, as such tools have only been sporadically discovered in isolated instances. Remarkably, to my knowledge, this represents the first instance of such a device being found as a depo, offering exciting new avenues for exploration in the field of medieval bookbinding. The most insightful studies on this subject are currently provided by scholars from Germany, Switzerland, and Austria. Their contributions have proven to be particularly valuable, offering extensive research and analysis that enrich our understanding of the topic at hand.

**1816. TAILORING AS A NARRATIVE LANGUAGE, THE FIRST ROBE OF SAINT FRANCIS OF ASSISI AND THE MANTLE OF BISHOP GUIDO**

**Contribution format:** Oral  
**Contribution authors:** Maria Giorgi (Accademia di Belle Arti di Brera | ICOM | IIC)

In the Judeo-Christian tradition, fabrics played a crucial and highly symbolic role. The intrinsic nature of the fabric, flexible, mobile and decorated, it allowed fabrics to play a crucial role in revealing the invisible. The fabric, therefore, delineates the border between the human and the divine, participates in the manifestation of divinity in a form sensitive to a theophany, underlining the supernatural presence. This study deals with a specific artefact consisting of, the first penitential robe of Saint Francis of Assisi and the mantle of Bishop Guido, analyzing the phases that led to the creation of this tunic, in the famous episode of its spoliation narrated in the Legenda Maior of San Bonaventura from Bagnoregio and depicted in the fifth scene of Giotto’s frescoes in the Upper Basilica of Assisi. This theme marks with particular effectiveness the relationship between habit and sanctity and the concept of habit as a system of signs, as the language par excellence used by Saint Francis of Assisi. Clothes are the product and reflection of a habitus, which in its literal meaning is understood as a Latinism used in constitutional medicine as well as in biology and in various other fields, instead of habit, to indicate the complex of morphological or behavioural characteristics of an individual or a species. Clothing can therefore connote a social and cultural tradition in which the individual is immersed. Through a series of historical-artistic and archival studies, as well as scientific investigation on fibres of the artefacts involved in this event of spoliation, we were able to reconstruct the phases that led Saint Francis to the creation of his first tunic.

**929. LESSER TOWNS, GREATER QUESTIONS: RETHINKING CONSUMPTION PATTERNS IN LATE MEDIEVAL CENTRAL EASTERN EUROPE**

**Contribution format:** Oral  
**Contribution authors:** Jakub Sawicki (Institute of Archaeology, Czech Academy of Sciences in Prague)

Later medieval lesser towns in Central Eastern Europe remain among the least archaeologically studied settlements. Major urban centres, fuelled by large-scale investments, dominate researchers’ attention, while castles and villages enjoy a long-standing tradition of academic study. Lesser towns, already challenging to define, represent a significant gap in knowledge. From a material culture perspective, this gap particularly concerns small finds — a category that is highly sensitive to analyses of daily life and social relations. Recent excavations at the market square in Cieszyn, a border town between contemporary Poland and the Czech Republic, provide a compelling case study. The site’s late 15th-century layers (post-1497) challenge conventional typological chronologies, revealing artefacts traditionally considered “terminated” by the 15th century persisting into the 16th. This forces a re-evaluation of poorly defined “late Gothic” and “Renaissance” artefacts, which remain understudied and frequently misidentified in the literature. The finds themselves — everyday items such as dress accessories and utensils, the protagonists of this presentation — are only a starting point for broader questions about consumption patterns in border towns at the turn of the century. They offer insights into the roles played by small towns in regional exchange networks and how these settlements shaped local identities.

**22. TRANSFORMATION OF POPULAR VISUAL CULTURE DURING THE PEAK OF LIMOGES PRODUCTION (1190–1250) FROM THE PERSPECTIVE OF ARCHEOLOGICAL FINDINGS**

**Contribution format:** Oral  
**Contribution authors:** Bernat Racz (Central European University (Vienna)) – István Pánya – Szabolcs Rosta (Katona József Museum of Kecskemét)

At the end of the twelfth century, metalworking in Latin Christendom entered a period of mass production. Various types of objects, such as crosses and copper-alloy bowls, were produced in metalworking centers and transported in large quantities across Latin Europe and beyond. A primary target for these production centers was the thousands of small village churches in East Central Europe and Scandinavia. Around 1200, due to the availability of metals, commercial connections, and ecclesiastical demands, the heyday of Limoges serial production began, significantly altering the everyday visual culture of the masses from the Iberian Peninsula to the Kingdom of Hungary. This paper will examine Limoges and some “German” artworks as everyday objects in small villages, focusing on understanding the preferences of primarily peasant communities in acquiring crosses in the Great Hungarian Plain before 1241. The influence of Limoges in particular was so profound that workshops were established to produce various types of Limoges-inspired crosses for thousands of churches in the region. The subject will be explored not only through archaeological perspectives but also through art history and ethnography. Based on a large corpus of material from the Great Hungarian Plain, it will be shown that villages had choices about what they wanted to purchase from the “European art market,” with their decisions often shaped by their budget. Furthermore, comparisons with larger centers will demonstrate that acquiring Limoges artworks was not out of necessity, but rather a fulfillment of aesthetic needs, which ultimately permeated the lives of two-three generations. Many of the shapes and styles created by Limoges were adapted and incorporated into a more rustic, peasant culture. Over a relatively short period, these adaptations significantly transformed the visual culture of major populations of thirteenth-century Europe.

**1889. ECCLESIASTICAL FINDS IN ARCHAEOLOGICAL SOURCES**

**Contribution format:** Oral  
**Contribution authors:** Martin Cechura (Museum of Prague)

Artefacts of ecclesiastical provenance are of exceptional value in archaeological finds collections. The most frequent group are grave additions found during excavations of medieval burial sites. Other common objects, such as coins, can also take on a specific religious significance in this form. While small devotionals, medallions and crosses are very common in the modern period, these objects are rather rarely found in the High Middle Ages. Another group are the objects found during the excavation of churches and chapels, including specific immovable monuments (e.g. baptisteries, their bases and drains, pulpits, altars, sacrariums, etc.). A special (and rather large) group are religious objects found outside the sacred environment, i.e. cemeteries and monasteries. These include, for example, book fittings with Christian motifs, reliquaries and processional crosses (Limoges), fragments of worship vessels, pilgrimage badges or papal bulls. Examples of archaeological finds from the Czech Republic will be used to present the different types of religious objects and to suggest ways of interpreting them depending on the archaeological context.

**55. PAPAL SEALS AS EVERYDAY OBJECTS**

**Contribution format:** Oral  
**Contribution authors:** Michael Lewis (British Museum | Portable Antiquities Scheme)

Papal bullae are not (typically) everyday objects, although many hundreds (almost 700 public finds from England alone have been recorded by the Portable Antiquities Scheme) are from rural landscapes. Some were evidently repurposed during the Middle Ages as everyday objects, including as seal matrices and spindle whorls. Others have been bent or folded and (likely) purposefully damaged in other ways, perhaps for ritual reasons. Alternatively, this activity might have been iconoclastic, occurring (most probably) during the mid-16th-century (Protestant) Reformation. Intriguing, and explored in detail here, are those that have been pierced. These include Papal bullae made into spindle whorls, those with other central piercings and those pierced elsewhere, presumably for suspension. By examining these pierced objects chronologically (i.e. based on when the bullae were made) and, importantly, in a European context, we might be more confident about why these objects were pierced and better understand whether they are everyday objects (or not).



504. THE ZSENNYE HOARD: A UNIQUE HACKSILVER HOARD FROM WESTERN HUNGARY (10TH-11TH CENTURY)

**Contribution format:** Oral  
**Contribution authors:** Anna Neválovits (Pázmány Péter Catholic University) – Péter Langó (Pázmány Péter Catholic University | HUN-REN Research Centre for the Humanities)

Hacksilver hoards are a widespread phenomenon in both Northern and Eastern Europe in the 9th-12th centuries. Fragmentary or intact silver and gold jewellery, coins or ingots are found in large quantities in northern Europe, parts of Eastern Europe, such as present-day Poland, Russia and Ukraine. The Carpathian Basin, as the southern periphery of this distribution area, has yielded fewer finds, including the gold hoard from Zsennye, the hoard from Darufalva (Austria, Draßburg), the hoard from Etyek-Richádpusztá, the hoard from “Királyfölde” (Romania), and the dirhemhoard of Maramureş County (Romania), This presentation focuses on a unique gold hacksilver hoard from Western Hungary: the hoard from Zsennye. The Zsennye hoard was discovered in 1925 in the garden of the castle in Zsennye, Vas County, Hungary. Three animal-headed gold and electron armrings were found in a poor-quality ceramic vessel. These pieces are distinctive, showcasing influences from northern, Rus, and Polish territories, yet they form a separate subgroup within the hacksilver finds. During the presentation, we will explore the placement of the hoard from Zsennye within a broader context of hacksilver hoards, address the dating of the armrings, and discuss the interpretation of the finds based on existing parallels. In the second half of the presentation, we will consider the function of the site in the 11th century, where the hoard was buried, and how this information contributes to the further research into the phenomenon of hacksilver hoards in Central Europe.

84. BRAND NEW TREND: THE EMERGENCE AND DEVELOPMENT OF GLASSMAKING IN KYIVAN RUS

**Contribution format:** Oral  
**Contribution authors:** Olena Zhurukhina (The Museum of History of the Desiatynna (Tithe) Church)

The specificity of study of Kyivan Rus glassmaking lies in the fact that it emerged as a new craft, not least due to cultural and political processes (acceptance of Christianity, dynastic, diplomatic and trade relations with Byzantium (and the West) through the import of glass products, and of course, the skills and knowledge of the Greek craftsmen). Probably in the 11th century glassmaking workshops were set up near the construction of religious buildings to produce glassware for church decoration (tesserae for mosaics, and windowpanes). But most of workshops have appeared in the 12th century and fixed on the Kyiv Podil district – the craft and trade centre of medieval town. Glassware from the 12th to the first half of the 13th century is the most numerous and diverse group with new product categories – vessels and jewellery (beads, bangles, finger-rings and inserts for metal rings). Numerous traces of the production: ruins of furnaces, raw materials, trade glass ingots, cullet glass for recycling and remelting, crucibles, tools, as well as production defects and finished products – testify to the spread of this craft and the growing market demand for these items. The research aims to identify the types of workshops, the origin of raw materials and the interpretation of the chemical composition of the glass used to make local products. However, not only in Kyiv, but also in several chronicle Rus sites (such as Pereyaslav, Chernihiv and Liubech), some remains of glassmaking production are found, which is also a promising area of research to determine the type of workshops, technical equipment, and volume of production.

1886. VESSELS WITH SGRAFFITO DECORATION FROM SOFIA USED AS CHURCH UTENSILS

**Contribution format:** Oral  
**Contribution authors:** Snezhana Goryanova (National Archaeological Institute with Museum at the Bulgarian Academy of Sciences (NAIM - BAS))

The modern Bulgarian capital of Sofia fell under Ottoman rule around 1382-1385. During the 15th and 16th centuries, when it was for a long time the central city of the Ottoman Empire’s European possessions (Beilerbeilik Rumeli and Rumelian Eyalet), the appearance of Sofia was increasingly dominated by the silhouettes of Muslim religious temples. The largest Christian churches were converted into mosques. The Orthodox churches in the central part of the city numbered more than twelve, but they were small and lost among the surrounding town houses. Most of them were cared for by various associations of craftsmen and merchants, or by the inhabitants of small Bulgarian neighborhoods. The inventory of the churches became considerably poorer. Some of the church vessels were no longer made of precious metals and glass, but of ceramics. A plate and a small bowl made of ceramic with sgraffito decoration were probably used in worship. The Christian symbolism of the images, which is quite unusual for Bulgarian medieval sgraffito pottery of the 13th-16th centuries, points to this interpretation. So far, no analogue of the composition on the inside of the bowl is known. The vessels were dumped in the ruins of a nearby burned house after being broken.

229. EARLY, LATE MEDIEVAL, OR RENAISSANCE? CLASSIC PATTERNS ACROSS TIME AND SPACE

**Contribution format:** Poster  
**Contribution authors:** Zbigniew Robak (Institute of Archaeology, Slovak Academy of Sciences, Nitra)

This presentation invites a discussion on how we analyze and interpret artifacts, focusing on medieval metal fittings for straps and similar applications. The findings emphasize the importance of a critical approach to examining discoveries and integrating tools to reduce common errors in interpretation. Mistakes in dating and understanding medieval fittings often stem from several key factors. Decorative motifs like vine scrolls, acanthus leaves, and geometric patterns were popular across the Early and Late Medieval periods and into the Renaissance. These recurring designs make it challenging to pinpoint when a particular piece was created. Adding to the difficulty is the frequent lack of archaeological context—many artifacts come from surface collections or are found by hobbyist metal detectorists, leaving their origins unclear. Another issue is the narrow scope of some analyses. Studies that focus on a single period or region may overlook broader historical and technological trends. Unusual fittings that defy easy categorization, along with production techniques that remained consistent over centuries, add to the complexity. Compounding the problem, older publications sometimes include incorrect datings, which are then repeated in later research. For example, items attributed to the Carolingian age may actually belong to much later periods. To tackle these challenges, we need modern research tools and integrated approach to better date and interpret artifacts. This poster encourages reflection on current methods and suggests practical ways to improve them, aiming to deepen our understanding of medieval artifacts and the stories they tell.

1697. MATERIAL CULTURE AND TRADE NETWORK: THE SITE OF ARUCH IN THE SILK ROAD CONTEXT

**Contribution format:** Poster  
**Contribution authors:** Elena Fausti (Università Sapienza di Roma) – Francesca Galanti (Università degli studi Roma Tre) – Sergio Ferdinandi (ISMEO) – Astghik Babajanyan (Iae Nas Ra)

The analysis of medieval material culture offers an essential perspective for understanding the interconnections between local, regional and transnational societies. The study of materials from the archaeological mission of Aruch (Republic of Armenia), particularly from the excavation sector near the Basilica of St. Grigor, fits into this broader picture, highlighting the site’s role in the Silk Road trade network between the 10th and 14th centuries C.E. The archaeological record, mainly composed of ceramics, glass artifacts, metal objects, and lithic tools, reflects daily practices, productive activities, and commercial dynamics. Particularly relevant is the evidence of local ceramic production and similarities with artifacts found at other Armenian and Caucasian sites, suggesting a dense network of cultural exchanges and influences. This archaeological mission aims to deepen the socio-economic dynamics of the site, contributing to the comprehension of the spatial and functional organization of the medieval settlement, placing Aruch in a broader perspective on material connections in the Middle Ages between Europe and the East.

2248. UNDER SIEGE BY THE OTTOMAN INVADERS

**Contribution format:** Poster  
**Contribution authors:** Mojca Jancar (Terarhis) – Mateja Ravnik (Institute for the Protection of Cultural Heritage of Slovenia, RU Kranj)

In 1532 after his second failed attempt to conquer Vienna, the Ottoman sultan Suleiman the Magnificent was returning home. His army besieged the town of Maribor because of the bridge over the Drava River. During this time, they also plundered the surrounding area and conquered the Upper Maribor castle outside the town walls. The archaeological excavations in 2011 at the castle site discovered an imprint of a small gun ball in the outer wall of the castle and in the vicinity an iron gun ball that matched the imprint. We tried to connect it with one of the conquests of the castle. The castle was namely conquered twice before in the 15t. century (in a feud of the Styrian nobility against the Holy Roman Emperor and by the Hungarians). Presumptively, it can be a ball for a 100 dirhem (or 0,25 okka) caliber darbzen gun, similar to the ones cast in Istanbul (weighing 73 kg) between 1522 and 1526, before the Mohács campaign. Darbzen guns were the most popular and widely used types of ordnance the Ottomans deployed during their campaigns, but also used in large numbers in battles as field guns.

2 BUT HOW IS THAT ARCHAEOLOGY?

**Session theme:** 2. Intertwined Epistemologies: Transcending the Data – Theory Divide  
**Session format:** Regular session  
**Session keywords:** Archaeological Theory, Unconventional Archaeology, Material Culture, Ontologies,



**Session organisers:** Archaeological Diversity, Interdisciplinary Approaches  
Susana Pacheco (CFE-HTC, NOVA University of Lisbon) – Joel Santos (University of Leicester)

**SESSION ABSTRACT**

In archaeology, many of us have heard or thought, “That’s not archaeology!” when encountering unconventional materialities or approaches. But as the field evolves, it is worth asking: what defines something as archaeological? Should we remain confined to traditional frameworks, or can embracing new perspectives help us enrich and expand our discipline? This session invites participants to explore how less conventional aspects—ranging from digital games, photography, and electronic devices to literature, plastics, and intangible or virtual worlds, among others—can complement more traditional material culture studies. Rather than challenging the core of archaeology, these approaches aim to broaden our understanding of human history and materiality. We will explore how integrating these new elements into archaeological research does not diminish established practices, but instead opens up new levels of inquiry. By discussing diverse case studies and theoretical perspectives, we hope to demonstrate that expanding the boundaries of archaeology can enhance rather than replace traditional methods. National and regional contexts may also shape how innovative practices are received, and this session aims to provide a platform for sharing those experiences. Our goal is to create a space where researchers from all backgrounds can discuss what makes something archaeological, and how different approaches—whether emerging or established—can work together to deepen our understanding of the past. We value openness and collaboration and encourage papers from all time periods, regions, and perspectives. Join us in this session to celebrate the diversity of archaeology, recognising that new perspectives not only enrich the discipline but also help to sustain its relevance in a changing world.

**CONTRIBUTION ABSTRACTS**

**1926. HERITAGE, FUTURES, AND HERITAGE FUTURES**

**Contribution format:** Oral  
**Contribution authors:** Janna Jokela (University of Turku)

Archaeology is most often associated with the study of the past. That is, however, not always the case. There is already a variety of examples where archaeology has been used to study contemporary phenomena. This paper suggests that archaeology can contribute to the study of futures as well. Archaeology is essentially the study of materiality and human interactions with their environments. Given the grim reality of the current environmental situation, there is need for better understanding of those interactions. Futures studies as an interdisciplinary field is interested in uncertainties and unknowns; the emerging, the probable, the possible. Having knowledge of both fields, this author sees many similarities between archaeology and futures studies. Material heritage is used to understand the past, but it can also help envision possible and preferable futures. Archaeology provides knowledge on ways of living in a material world, and there is potential in combining that knowledge to the study of futures as well. This paper reflects on data from two participatory futures workshops conducted in 2024 with the topic of waste. The purpose of the workshops was to explore ecologically sustainable futures by using archaeological material of both the past and present as sources of reflection, discussion and imagining. Through this case study, this paper discusses the relationship between heritage and futures, and the concept of heritage futures.

**2502. HOW AN OUTSIDE PERSPECTIVE BECOMES PART OF ARCHAEOLOGY**

**Contribution format:** Oral  
**Contribution authors:** Catherine Toulouse (Lengyel Toulouse Architects) – Dominik Lengyel (BTU Brandenburg University of Technology Cottbus-Senftenberg)

If one conventional aspect of archaeology is to tell a coherent story from traditional material culture studies, then this process is a synthesis not unlike that of the creative disciplines. In both cases creativity is required, and the methods are transferable. This unconventional approach is a new perspective and can enrich and broaden the discipline of archaeology. It is about the familiar use of abstraction in language when archaeology formulates hypotheses. This uncertainty is considerable in any stage of the design process of architects, when they concretise open-ended initial thoughts for themselves or their clients. What emerges from this process could be described as the intention behind the realisation, in a sense, the intention that preceded the buildings. It appears as abstract forms and volumes that can be visualised as if it was built architecture, and thus intuitively evoke the image of architecture at first glance. This works both within the discipline of archaeology and for the wider public. At the same time, the scientific nature of the work is emphasised by the deliberate choice of a lack of detail. It is this openness to further interpretation that allows archaeology to expand its boundaries, because the dialectical collaboration with architecture has a retroactive effect on archaeology. This innovative practice of

using a different discipline as a catalyst does not change archaeology itself, but it makes the collaboration archaeological and deepens the understanding of the past. From the point of view of archaeology, this strengthens the importance of archaeology to contemporary society. The insights gained from the archaeological hypotheses add to the experience and knowledge from which today’s architects can draw. In this respect, the collaboration helps to maintain the relevance of archaeology. The paper illustrates the method using prominent projects from collaborations with numerous museums, research, cultural and educational institutions.

**1803. PAMPA AND THE PALIMPSEST: MAPPING LISBON’S PIXOSCAPES AS CONTEMPORARY ARCHAEOLOGY**

**Contribution format:** Oral  
**Contribution authors:** Tania Casimiro (NOVA University Of Lisbon)

Pixo (pixação), an urban writing practice rooted in resistance and territoriality, challenges conventional understandings of material culture and permanence. In Lisbon, the prolific pixador known as PAMPA has left hundreds of cryptic inscriptions across the city, creating a spatial and semiotic network of presence, defiance, and ephemeral authorship. But how can we engage with such a practice archaeologically. This paper explores pixo as an archaeological phenomenon, treating it as a contemporary form of inscription that both marks and interacts with the built environment. By following PAMPA’s traces through Lisbon, we consider how pixação functions as an alternative form of urban palimpsest—layered, contested, and continuously reworked. Situating pixo within debates on the archaeology of the contemporary world, we examine how its materiality, transience, and social context contribute to a broader discussion of what constitutes an archaeological trace. By bringing pixo into the archaeological conversation, this paper challenges rigid boundaries between past and present, sanctioned and unsanctioned materialities. Through an interdisciplinary approach that integrates spatial analysis, visual semiotics, and ethnographic engagement, we argue that pixação is not merely an act of vandalism but an evolving cultural practice worthy of archaeological attention.

**1217. NOT ONLY OF MATERIAL CULTURE THE ARCHAEOLOGIST LIVES. AN INTERDISCIPLINARY STUDY THROUGHOUT CINEMA AND ARCHIVES**

**Contribution format:** Oral  
**Contribution authors:** Patrizia Marra (Sapienza Università di Roma | National Research Council of Italy, Institute of Heritage Science)

The alchemy between archaeology and cinema has been strong since the very first invention of the cinematographic medium. At date, we can mention a number of archaeological exhibitions which devote some part of their itinerary (usually the closing segment) to highlight some cinematic incursions into the archaeological framework object of the instalment. Though, what is missing within this frame is a systematic and structured scheme helping archaeologists and curators of archaeological exhibitions to make the most out of the fascinating binomial archaeology-cinema. This presentation discuss an ongoing research project focused on a systematic revision of filmic and archival documents from Italian silent cinema productions. The aim is on the one hand to allow structured search by keywords, on the other hand to highlight the value of archival information: mentioning the presence of a specific archaeological reference in a silent movie is not a merely anecdotal curiosity. Rather, the interdisciplinary approach can help us reconstruct the ‘chain of interest’ originating from the film-industry worker (i.e. director, scriptwriter, set designer) researching the archaeological past, its narrative suggestions and its evocative material culture and, through its filmic rendition, reach the spectator in a world – the early ‘900 – where moving images played a pivotal role in the shaping of popular imagery. Indeed, according to Turin’s Società Anonima Ambrosio’s films production brochure for 1913, cinema was intended to be a “popular tool for intellectual propaganda”.

**1846. THE REAL HOUSEWIVES OF ESTADO NOVO: EXCAVATING GENDER IDEOLOGY IN PORTUGUESE MAGAZINES**

**Contribution format:** Oral  
**Contribution authors:** Susana Pacheco (CFE-HTC, NOVA University of Lisbon)

The Estado Novo (1933-1974) established an authoritarian regime in Portugal, rooted in a conservative ideology that reinforced female subordination through repressive policies and rigid social norms. Women were institutionally reduced to the roles of housewives and mothers, seen as the pillars of family and national morality. Through legislation, official discourse, and organisations such as the Mocidade Portuguesa Feminina and the Obra das Mães pela Educação Nacional, the regime perpetuated a model of femininity based on obedience, modesty, and economic dependence on the husband. This presentation explores the repression of housewives from an archaeological perspective, focusing on magazines, mostly but not exclusively, aimed at a female audience as key material evidence of ideological control. These publications, widely circulated during the Estado



Novo, functioned as powerful tools of propaganda, shaping and reinforcing prescribed gender roles. By analysing their texts, images, advertisements, and recurring themes, we can uncover how the regime used mass media to regulate women’s identities, confining them to the domestic sphere and discouraging any form of autonomy. Even within this controlled media landscape, magazines also reveal subtle forms of resistance and negotiation. Some content exposed tensions and contradictions in Estado Novo’s idealised vision of domesticity, while certain readers or even editors found ways to challenge or reinterpret these narratives. By treating women’s magazines as archaeological artefacts, this study sheds light on the materiality of repression and how Portuguese women faced and sometimes defied totalitarian expectations. Through this case study, the communication contributes to broader discussions on the archaeology of gender, power, and propaganda in 20th-century authoritarian contexts.

69. GENDERED SPACES AT WAH-SUT: THE FICTIONAL TALE OF PRINCESS RENISENEB THROUGH AN ARCHAEOLOGICAL LENS

Contribution format: Oral  
Contribution authors: Courtney Crawford (Northwest Missouri State University)

Many scholars have studied gender and women in ancient Egypt; however, the concept of archaeological storytelling is new in Egyptology. One site in Egypt, Wah-Sut, contained many artefacts that pertain to women that can illuminate their roles and spaces in the Pharaonic Period. In particular, property seals with names of women were found in large quantities, most specifically for the woman Princess Reiseneb. The author created a fictional story about the Middle Kingdom Princess by using archaeological evidence that was found in Villa A, a palace at the site of Wah-Sut, to contextualise the artefacts and their significance for women. Additionally, most archaeology work is only analysed by an academic audience, which does not allow the general public to learn more about the past. The creation of a fictional story based on archaeological evidence can attract a larger audience to the study of women in ancient Egypt. This research illustrates the spaces women inhabited and how they can be interpreted in a fictional context.

1411. BORGES AS AN INFINITE ARCHEOLOGIST

Contribution format: Oral  
Contribution authors: Vukic Antovic (Faculty of Philosophy, University of Belgrade)

Archeology and literature have a very long common tradition. This paper deals with possible methodological contributions of postmodern literature to archeology. Archeological research will be placed within the framework of a literary text that talks about reading the archeological record, using the example of Borges’ “Fictiones”. The possibilities of this metatextual process will be explored through the principles of philosophical hermeneutics of Gadamer and Heidegger. In that literary construction, the archeologist will become a Socratic hero in his ever-questioning-ness, who witnesses the elucidation of the dialectical nature of meaning. The dialogicness of the relation between the important two: archeologist — archeological record, and reader — text will also be a metaphor for the relationship between the two great horizontal planes on which the archeologist moves: rational and existential. Moving from one plane to another, the archeologist will be able to redefine and enrich the horizon in which he or she thinks, understands and acts.

1808. IS ARCHAEOLOGY STILL A BIOLOGICAL SCIENCE OR ALREADY MORE HUMANISTIC? COGNITIVE ARCHAEOLOGY VS. PSYCHOLOGY BASED ON KARL GUSTAV JUNG

Contribution format: Oral  
Contribution authors: Patrycja Godlewska (University of Nicolaus Kopernik Toruń)

Archaeology bases its main assumptions on solid foundations - biology, science, and object descriptions. It analyses the creations of material culture. Its paradox is that it is a science on the borderline between the biological disciplines and the humanities. The biological factor seems to be more strongly emphasized. This may bring archaeology closer to psychology. According to Karl Gustav Jung, psychology is a mediated science. It is empirical in its research and humanistic in its methods of explanation and description. The psyche is biologically determined. Emotions manifest themselves through concrete actions visible in material culture, similarly in archaeology. The archaeologist, often unconsciously examining the matter (the physical products of culture), tries to get into the mind of the man of the past - especially the archaeologist-cognitive. Emotions are often hidden in the main element of research - matter. It is the object that becomes the ‘silent’ interlocutor. With it, the archaeologist engages in a dialogue. By analyzing objects, using the assumptions of mnemonics and archaeotatology, cognitive archaeology tries to decipher the emotions that drove people. In this respect, it is methodologically similar to psychology. On an empirical basis, both sciences seek answers to the question of human nature. Their combination can yield surprising results. Elements of material culture in the right context can tell a lot about the hidden emotions of the past. Early medieval Slavic cemeteries from Piast Poland will serve as a basis. By analysing selected objects, which will offer a new perspective on the objects found in early medieval graves. I will use

the concept of K. G. Jung and the psychopathology of A. Kempieński

1377. EXPANDING ARCHAEOLOGICAL INVESTIGATION THROUGH DIGITAL RECONSTRUCTION: THE CASE OF POSTA RIVOLTA

Contribution format: Oral  
Contribution authors: Roberto Malinconico (Università degli studi di Bari Aldo Moro | Università degli studi di Roma “La Sapienza”) – Annalisa Treglia (Castello Svevo di Bari - Direzione regionale Musei nazionali Puglia) – Enrico Lucci (Università degli studi di Bari Aldo Moro)

Introduction: Digital reconstruction offers an alternative approach through an additive process, enriching archaeological interpretation by creating and analyzing structures in their original context. This study explores how digital methodologies, particularly 3D reconstruction, open new perspectives for understanding prehistoric architecture. The research focuses on the domestic structures of Posta Rivolta, a settlement associated with the Palma Campania cultural horizon in Southern Italy (late 3rd – early 2nd millennium BCE). Through the use of digital tools, this study supports conventional archaeological paradigms, positioning digital reconstruction as an analytical tool rather than merely a multimedia resource. Methodology: The research implements an integrated digital approach using open-source software, comprising data acquisition through GIS-based spatial analyses and excavation data, 3D modeling with archaeological markers, material reconstruction using AI-generated textures, and analytical calculations of structural properties. Results: The digital reconstruction has produced key findings through volumetric analysis of construction materials, aerodynamic simulations for wind resistance and ventilation, and evaluation of structural feasibility including load-bearing capacity. Discussion: This research positions digital reconstruction as a crucial tool for archaeological interpretation, introducing an additive component to a discipline that traditionally relies on a subtractive approach—one that uncovers the past by removing soil and material layers through excavation. In contrast, digital reconstruction allows archaeologists to visually restore and integrate lost or fragmented elements, enhancing interpretation and analysis. Rather than merely representing past structures, digital methodologies provide dynamic tools for testing hypotheses on construction processes, resource allocation, and environmental adaptation. The integration of AI-generated textures and quantitative analysis enhances the scientific rigor of reconstructions. This virtual reconstruction method also extends to heritage valorization and public engagement through musealization and the creation of multimedia content. The case of Posta Rivolta demonstrates how these approaches can complement traditional excavation, broadening the scope of archaeological research while maintaining methodological accuracy.

2316. RIVER, FOREST, CITY: A DEEP MAPPING STUDY OF KAISERSLAUTERN, GERMANY

Contribution format: Oral  
Contribution authors: Kat Nickola (University of the Highlands and Islands)

In this deep mapping study, the city of Kaiserslautern is used as a focal point for an intensive look at the way experiences within the landscape can inform the cultural and historical heritage and landscape memory of a small area in Germany. Purposeful walks, influenced by psychogeography techniques, establish a baseline of encounters that help to evolve the focus and synthesis of historical records, archaeological sites and reports, folklore and mythology, historical maps and photography, art and media, and GIS usage. By setting aside conventional methodology and opting for the openness of deep mapping, the project organically conveys the connection between modern personal encounters and both perceived and historical past in the landscape. Delving into the source of cultural memories in this ‘everyman’ of a small German city also shows the value of studying such places. By deep mapping Kaiserslautern, we can begin to understand how less well-known, seemingly simple landscapes are powerful to those who occupy them.

2035. LASER-INDUCED BREAKDOWN SPECTROMETRY (LIBS) AS A POTENTIAL NEW METHOD FOR SORTING COMMINGLED SKELETAL REMAINS FROM AN ARCHAEOLOGICAL CONTEXT

Contribution format: Poster  
Contribution authors: Katie Zejdlik (Department of Anthropology, Ohio State University) – Kristen Livingston (National Center for Forensic Science and Department of Chemistry, University of Central Florida) – Jonathan Bethard (Department of Anthropology, University of South Florida) – Matthieu Baudalet (National Center for Forensic Science and Department of Chemistry, University of Central Florida)

Commingling of human skeletal remains in archaeological assemblages may be the result of many different mortuary behaviors and taphonomic processes. Reassociation of commingled remains requires time, space, and a practiced knowledge of skeletal articulation, taphonomic processes, and human variation. Laser-Induced Breakdown Spectroscopy (LIBS) is a tool being assessed for its utility in sorting commingled remains. LIBS is



an atomic spectroscopy that uses a high-focused laser to excite the atoms in a sample and breakdown materials to their most fundamental level, resulting in an elemental profile. It is portable, does not require sample preparation, relatively non-destructive (approximately 1/5 the thickness of human hair), and can detect low atomic weights such as carbon, nitrogen, and oxygen; thereby, making it a potentially useful tool for reassociating commingled remains beyond the capacity of other elemental methods such as the more popularly used portable X-ray fluorescence (XRF). This method and team have demonstrated success in sorting human remains from human decomposition facilities in the United States. Expanding on what we learned from that study, the team tested the LIBS technology on archaeologically recovered human remains (17 sets, 445 total human bones) from three archaeological sites in Transylvania, Romania dating between CE 1600 and 1800. Early results indicate that the method was successful at sorting the remains into individuals and that additional refined data related to age of interment may be possible.

### 3 ARCHAEOLOGY OF THE FORGOTTEN: RECOVERING ERASED PASTS

**Session theme:** 2. Intertwined Epistemologies: Transcending the Data – Theory Divide  
**Session format:** Regular session  
**Session keywords:** Forgotten Archaeology, Theoretical Archaeology, Erased pasts, Ephemeral  
**Session organisers:** Joel Santos (University of Leicester) – Tania Casimiro (FCSH University Nova of Lisbon)

#### SESSION ABSTRACT

Mainstream archaeological research has traditionally focused on grand monuments, dominant cultures, and prominent material remains, shaping historical narratives that prioritise certain voices while silencing others. This session seeks to redress such imbalances by examining the “archaeology of the forgotten”—those individuals, communities, landscapes, and narratives that are frequently marginalised or omitted from the canon of archaeological inquiry. By foregrounding what has been deliberately excluded or inadvertently overlooked, this session invites a critical reassessment of the processes that produce absences in both archaeological research and collective memory. We welcome contributions that interrogate the structural forces—such as power dynamics, social hierarchies, and cultural biases—that shape the selective remembering and forgetting of particular histories and material cultures. How do these forces govern what is preserved, represented, and valorised within archaeological and public discourses? Moreover, what are the ethical implications and methodological challenges of recovering these marginalised pasts? We encourage discussions on the role of archaeology in addressing historical erasures and rebalancing narratives that have long been skewed by dominant ideologies. Submissions may explore diverse themes, including the archaeology of marginalised populations, ephemeral materialities, and silenced traditions; erased or contested landscapes; gendered and racialised exclusions; and the intersections of digital and public archaeology in recuperating forgotten pasts. By engaging with interdisciplinary approaches and fostering critical debates, this session aims to expand the epistemological boundaries of the discipline, challenging conventional narratives and illuminating the complexities of memory and omission in the construction of historical knowledge.

#### CONTRIBUTION ABSTRACTS

##### 986. (IN)VISIBLE CHILDREN AT THE BINIADRÍS CAVE (MENORCA, SPAIN)

**Contribution format:** Oral  
**Contribution authors:** Nina Horn-Wittkuhn (University of Tübingen) – Monice Timm – Döbereiner Chala-Aldana (University of Tübingen | SFB 1070 ResourceCultures, Germany) – Auxilio Moreno Onorato (University of Granada) – Marta Díaz-Zorita Bonilla (University of Tübingen | SFB 1070 ResourceCultures, Germany)

Children are an integral part of human communities, playing a vital role in daily life—a role that should not be underestimated. Yet, both in the present and past, their significance often remains marginalized, with children frequently assigned an ephemeral presence in archaeology and beyond. Until the late 1980s, children were largely overlooked in the archaeological record, and scholars’ lack of interest nearly rendered them invisible. Furthermore, their social role and influence in past societies were not recognized as they were rarely the subject of in-depth analysis. Archaeologists recognizing the importance of integrating childhood studies have formed a growing community exploring various aspects of childhood archaeology in recent years. Despite children’s undeniable presence and agency—often making up a significant portion of past populations—they continue to receive minimal attention, with their role in archaeological interpretations remaining sparse in broader discourse. This paper aims to present an example of archaeological research that prioritizes children, emphasizing a case of archaeological research where the focus lies on their significance in a commingled funerary context. The burial

cave of Biniadrís, Menorca (Spain), dating to Late Bronze/Iron Age, serves as an excellent case for studying interrelations of different age groups and their social structures and dynamics due to its remarkable preservation of various archaeological materials and its well-balanced paleodemographic profile. Children’s agency in the funerary context at Biniadrís is explored through multiple methods including GIS and theoretical perspectives. Additionally, associated find groups are considered, while the theoretical framework is informed by current approaches in Childhood Archaeology, Gender Archaeology and the Bioarchaeology of Care. The available data from Biniadrís will be further contextualised through a comparative analysis with other caves in Menorca, including Es Càrritx, Cova des Pas, and Cova des Mussol, to explore children’s presence and agency on an inter-regional scale within Island Studies.

##### 821. FORGOTTEN ITALIC PEOPLE: ARCHAEOLOGY OF OENOTRIANS AND BRETTIANS IN SOME MINOR DESTINATIONS OF CALABRIA

**Contribution format:** Oral  
**Contribution authors:** Luciano Altomare – Paolo Brocato (Università della Calabria, Dipartimento di Studi Umanistici) – Fabio Bruno (Università della Calabria, Dipartimento di Ingegneria Meccanica, Energetica e Gestionale) – Chiara Capparelli – Filomena Costanzo (Università della Calabria, Dipartimento di Studi Umanistici) – Emanuele Marino (Università della Calabria, Dipartimento di Ingegneria Meccanica, Energetica e Gestionale) – Antonio Agostino Zappani(Università della Calabria - Dipartimento di Ingegneria Civile)

Archaeological research in southern Italy has traditionally given priority to the study of Greek and Roman sites, defining a historical narrative that has often marginalised indigenous Italic cultures, relegating them to a secondary level. Significant delays in the reconstruction of indigenous landscapes have been caused by the prevalence of ethnocentric approaches. The lack of investment in the promotion of indigenous archaeological areas has left them on the margins of tourism and unknown even to local citizens. As part of the research project “Tech4You - Pilot Project 4.5.1: Enabling Accessibility in Minor Destinations” (University of Calabria, National Recovery and Resilience Plan) activities are underway to analyze some minor destinations in the Calabrian territory. The aim is to highlight less known areas through systematic scientific research, as a basis for the digital reconstruction of archaeological evidence. In particular, the cases of the Oenotrian site of Francavilla Marittima and the Brettian site of Tiriolo are examined. These are contexts that are located in decentralised areas of Calabria, where the historical and cultural identity could be represented just by the remains of Italic civilisations. The sites preserve fundamental evidence of pre-Roman context, but they have suffered from the lack of systematic researches and publications, with consequent gaps also in terms of structured promotion. For Francavilla Marittima and Tiriolo the finds are often fragmented and are not immediately comprehensible. Therefore, it’s essential to carry out digital reconstruction work in order to give content to the scientific data and increase its communication potential. The aim of this speech is to illustrate the research activities, combining systematic approaches to the study of archaeological evidence with digital and multimedia techniques (3D models and augmented/virtual reality tools), in order to promote the reconstruction, in terms of storytelling, of the archaeology of the “forgotten”.

##### 276. REDISCOVERING A FORGOTTEN BYZANTINE COSTAL SETTLEMENT AT DURRUELI: A COMPELLING CASE FROM THE SOUTHERN SHORE OF SICILY

**Contribution format:** Oral  
**Contribution authors:** Fabrizio Ducati (Aix Marseille University | The University of British Columbia) – Tomoo Mukai (Aix Marseille University) – Maria Serena Rizzo (Parco Valle dei Templi Agrigento)

In Sicily, the Late Antiquity and Early Middle Ages have long been overshadowed by an adverse historical bias that frames these periods as marked by decline and decadence. This perspective has, in some instances, led to the hasty removal of traces of occupation from these centuries in favour of uncovering the more opulent structures of the Hellenistic and Imperial periods beneath. Such practices have often resulted in the significant loss of information, erasing entire phases of a site’s history and producing oversimplified interpretations and gaps in our understanding until the present day. In this context, the site of Durruei provides a particularly compelling case study. Situated a few kilometres northwest of Agrigento, Durruei is renowned for its magnificent villa marittima, which was extensively excavated between 1979 and 1985 by a Japanese archaeological mission. However, apart from a few preliminary reports, much of the documentation remains unpublished. For a long time, it was assumed that the site was abandoned following the villa’s destruction in the 3rd century AD. Nevertheless, a recent re-analysis of the finds and documentation from the Japanese excavations, conducted as part of a Marie Skłodowska-Curie Global Fellowship, has uncovered compelling evidence of later phases of occupation. This paper presents the results of the 2024 study season, which identified a 6th- and 7th-century settlement amidst the villa’s ruins. This settlement emerges as a node within a broader network of landing places along Sicily’s southern coast, as mentioned in contemporary sources. The integrated approach combining archaeological and archaeometric analyses of artefacts—particularly pottery—offers invaluable insights into the daily lives of this community,



shedding light on their consumption practices, habits, and needs. Furthermore, the material evidence highlights connections linking such a settlement to various regions of the Mediterranean, spanning the Byzantine domains and extending to African territories already under Umayyad control.

2419. VIKING BLISS : THE GOLDEN AGE OF SQUARE KUFİ

**Contribution format:** Oral  
**Contribution authors:** Annika Larsson (TexArk - The Society of Textile Archaeology & Culture Studies | Uppsala University) – Mohamed Guennoun (TexArk - The Society of Textile Archaeology & Culture Studies)

Let us present our new book “Viking Bliss - The Golden Age of Square Kufi”, which will be released in September 2025. The starting point is the immense amount of Islamic faith expressions, found on textiles during c. 150 years of the pre-Christian era of the Viking Age in Scandinavia. The findings do not only consist of tiny remains in rich burial environments, such as the well-known necropolis of Birka in Eastern Central Sweden, but are also expressed in tapestries preserved above ground throughout the Nordic region for more than 1000 years. The Kufic patterns help us in several cases both to redefine burial environments that were previously classified as expressions of a particularly “ur-Nordic” Asa faith, but also help to re-date finds that were previously considered to be of older date than the patterns actually tell. Almost all textile art preserved in Scandinavia appears to have originated in Central Asia, and, like the large number of Islamic coins from the same period, provides a picture of how the Islamic Golden Age - via Russia - had a significant impact on the Nordic “Viking” society before Christianity gained its dominance in the area. Through solidly presented analyses in art, linguistics, religion and, not least, the historical perspective of ideas, we question many of the identity-creating so-called “truths” about the Scandinavian Viking Age. Our results indicate that today’s Islamophobic movements, which often use Viking Age textile patterns from Scandinavia as a model, actually manifest themselves through consistently Islamic expressions.

1736. EXPLORING THE EREMITICAL LANDSCAPES OF SERRA DA OSSA THROUGH ARCHAEOLOGY

**Contribution format:** Oral  
**Contribution authors:** Joel Santos (University of Leicester)

In medieval times, there was an eremitical community living in Serra da Ossa, and it was connected with the congregation of São Paulo. They sought refuge in the isolation of the mountain, searching for spiritual fulfilment. Yet, their retreat from society often led to unintended consequences—loneliness. Their volunteer isolation from the world was probably connected to some will to be forgotten. Historical narratives have been written about this community. However, there is still a lack of archaeological investigation. We believe it is possible to use material traces the hermits left behind to identify their daily struggles. This paper invites discussions on the methodological challenges of studying communities that left behind ephemeral material remains and fragmented records. By engaging with themes of memory, marginality, and the politics of remembrance, we seek to illuminate the lives of those who, despite their withdrawal, remain integral to our understanding of medieval religious landscapes. In bringing these forgotten hermits back into scholarly discourse, we challenge conventional narratives and reaffirm the importance of exploring history’s silenced voices.

352. RECOVERING ERASED HISTORIES: NOBLE CRYPTS AND THE FORGOTTEN PASTS OF POMERANIA.

**Contribution format:** Oral  
**Contribution authors:** Katarzyna Slusarska (University of Szczecin) – Joanna Rennwanz (Institute of Archaeology and Ethnology, Polish Academy of Sciences) – Marcin Majewski (University of Szczecin) – Monika Ogiewa-Sejnota (Archaeological and Historical Museum in Stargard)

The archaeology of forgotten pasts is crucial for reconstructing historical narratives that have been erased by social and political shifts. In Pomerania, the pre-World War II history of its German noble families was marginalized during the communist era in Poland. Our research aims to reintegrate these lost histories into contemporary awareness, linking the pre-war past with the current inhabitants. Since 2020, our interdisciplinary team has investigated so far four noble crypts from the 16th to 18th centuries: Białowas (Balfanz), Koszewo (Groß Küssow), Bród (Braunsforth), and Komorowo (Kummerow). These neglected burial sites provide vital insights into early modern funerary practices, social hierarchies, and transgenerational memory in Pomerania. Through historical inquiry, epigraphic and artistic analyses, osteological research, and material culture studies, we aim to reconstruct the narratives of these noble families. Our investigations involve collaboration between the research team and the local community, supported by municipal and church authorities. Each excavation concludes with an open lecture, sharing our findings and the histories of the noble families with the public. These events attract significant interest, illustrating how historical awareness can enhance local identity and foster a sense of responsibility for cultural heritage. Our work is more than historical restoration; it fosters modern awareness of Pomerania’s

complex heritage. By uncovering these crypts, we help contemporary communities reconnect with their region’s multi-ethnic and layered history, challenging dominant narratives, addressing historical erasures, and expanding the discourse on forgotten landscapes., allowing contemporary communities to reconnect with their region’s multi-ethnic and multi-layered history. In doing so, we challenge dominant narratives, address historical erasures, and expand the theoretical archaeology of forgotten landscapes.

547. UNEARTHING THE MARGINALISED COMMUNITY IN THE POST-MEDIEVAL CEMETERY OF SÃO JORGE CASTLE, LISBON

**Contribution format:** Oral  
**Contribution authors:** Susana Henriques (CIDEHUS - University of Évora)

An archaeological excavation in São Jorge Castle identified an unknown cemetery in Lisbon, associated with a Military Hospital, the administration of the hospital alternated between military officials and the Hospitaller Order of São João de Deus. The Hospital catered to the military community between the end of the 16th century and the earthquake of 1755. The construction of a new cemetery intended for the military population, a consecrated four-wall space, in the old medieval city centre, implied the physical separation of this community of the dead, from the community of the dead buried in the parish grounds. This intentional segregation carries significant social implications regarding the status of the deceased interred in this new cemetery. Analysis of the parish records presents a more complex portrait of those buried in the cemetery. In addition to the military personnel: prisoners, slaves, foreigners, unnamed individuals, the poor and mendicants were also buried there. We aim to explore this community of dead individuals who were ostracised from the parish grounds. Once buried, these individuals merge into an anonymous collective group, negating their individuality and personhood. This transformation into a communal setting enables archaeologists to conduct thorough studies of these burial populations. By examining the archaeological data and the parish obituary records we can gather important information about the cultural practices, social structures, and demographic characteristics of the communities from which these individuals originated, thereby contributing to a deeper understanding of historical societies. We intend to analyse this marginalised community, aiming to bring these social agents back to the historical discourse. A segregation act for a community outside the norms buried in a new community, devoid of familial or community ties, provides a valuable opportunity for reevaluating social frameworks. It also enhances the representation of diverse individual identities within post-medieval social structures.

525. JUXTAPOSED TECHNOLOGIES AND MATERIALIZATION OF THE ANDEAN INDIGENOUS AND MESTIZOS WORLDS IN THE ATACAMA DESERT, CHILE (16TH - 19TH CENTURIES)

**Contribution format:** Oral  
**Contribution authors:** Mauricio Uribe – Claudio Wande (University of Chile)

The study of European colonization in the Americas has primarily been approached from historical perspectives, undervaluing archaeological and material evidence in understanding these traumatic processes. This has led to partial perspectives and biased imaginaries due to the lack of material data in colonial narratives and documents, which were written from within the Spanish bureaucracy. In the Andes, this has generated notions such as the “Indios” being conceived as a “passive or residual recipient” or even as the “defeated” in history, erasing their agency in the reconfiguration of socio-economic systems in response to European civilization expansion. These conceptions are further reinforced in the margins of colonial regime in South-Central Andes, where marginality becomes doubly marginalized due to the absence of the extensive historical and documentary records available in Spanish centers. To address this, we propose a materializing archaeological approach to colonial encounters, where materiality serves to make visible the pasts and conditions that were hidden, erased, or even eradicated. Through an archaeological perspective on the technologies and materialities represented by Hispanic and Indigenous ceramics from northern Chile at the colonial contact, we systematically examine the materialization of these “colonial encounters” in key colonial locations of the Atacama Desert. By analyzing these technologies, we aim to contribute a substantive perspective on syncretisms, violences, and resistances to discuss how indigenous, mestizo, and Iberic worlds were configured in the Andes. This materializing archaeological approach is essential for disentangling the tensions imposed by colonial narratives in the world’s driest desert, moving beyond simplistic divisions between victors and the defeated. Instead, this technological evidence of these ceramics shows violent coexistences and even juxtapositions that emerged in the margins of these imperial systems.



646. WHY HAVE WE NOT SEEN THEM? AFRICAN POPULATIONS IN LA IGLESIA DE LA CONCEPCIÓN, SANTA CRUZ DE TENERIFE (CANARY ISLANDS)

**Contribution format:** Oral  
**Contribution authors:** Alejandra Ordóñez (Universidad de Las Palmas de Gran Canaria) – Javier Serrano – Clara Díaz-Pérez – Ana Pérez (Universidad de La Laguna) – Matilde Arnay De La Rosa – Rosa Fregel (Universidad de La Laguna)

The identity of present-day inhabitants of the Canary Islands has been constructed primarily by the cultural and genetic heritage of two main historical groups that have evolved into the current Canary Islands society. One is the Indigenous Berber people, which nationalist discourses have highlighted to emphasize the differences between the Archipelago and the rest of Spain. The second one would be the Europeans introduced after the conquest of the Islands at the end of the Middle Ages. Nevertheless, following the European conquest, the Canarian Archipelago became a strategic point of Modern trans-Atlantic commerce and, therefore, a participant in the trade of enslaved individuals. The presence of black enslaved African people can be traced in the Canary Islands in the first years after the completion of the conquest by the Crown of Castile in 1496. Despite their substantial contribution, their presence and influence have not been sufficiently acknowledged inside and outside academia. This work seeks to address this issue, partly correcting this mistake. We present preliminary genomic and historical results from the 18th-century burials from the Iglesia de la Concepción in Santa Cruz de Tenerife. Our findings reveal the presence of 18.2% of individuals of maternal sub-Saharan African origin, showing the significant role of African-descended populations within the Modern Period Canarian Society. The written documents, where we find specific references to the enslaved populations, illuminate their role in this community, often linked to domestic environments and as a symbol of social status for their owners. This interdisciplinary data will allow us to discuss not only their role and the reasons why they appear in this burial site but also why they have been practically erased from the construction of the Canarian identity and the implications it has for contemporary issues like the modern migration of African populations into de Archipelago.

2492. ANTI-COLONIAL SEDIMENTS: MIGRANT AND INDIGENOUS ARCHAEOLOGIES IN 19TH-CENTURY OTTOMAN WRITINGS FROM THE GULF OF ANTALYA

**Contribution format:** Oral  
**Contribution authors:** Leticia Rodriguez (University of Houston) – Jason R. Vivrette (University of California, Berkeley)

This paper bridges the disciplines of archaeology and literature, with a focus on intersections between two 19th-century Ottoman works set in the coastal environs of Antalya: Dimitri E. Danieloglou’s Greek-language archaeological travelogue, *Travels in Pamphylia* in 1850, and Nabizade Nazım’s novella of 1890, *Karabibik*, one of the first realist works in Ottoman Turkish to thematize Anatolian village life. *Karabibik* is also notable for its narrative engagement with the numerous ancient structures and archaeological layers (e.g., Lycian, Greek, Byzantine) that feature prominently in the local landscape. Previous studies (e.g., Özil, 2020, 2024; Gökalp Alpaslan, 2007) have begun to explore how Danieloglou and Nazım provide a glimpse into provincial (and multicultural) perspectives on life among the ruins. And yet in the research to date, there is still a tendency to give precedence to the Hellenophilic, colonial ideologies of previous European travelers to these terrains (e.g., Charles Fellows, Charles Texier) informing the writings of these Ottoman authors. Indeed, as members of elite communities with privileged mobilities (Danieloglou came from a wealthy Greek land-owning family in Antalya, while Nazım was a graduate of the Imperial School of Military Engineering in Istanbul who traveled to Antalya to document its topography), both writers at times reproduce a kind of colonialism-through-archaeology by delegitimizing non-elite knowledges and mobilities. Nevertheless, this paper contends that there are still significant “alternative archaeologies” (Greenberg and Hamilakis, 2022) to recover within these works. By removing the ‘colonial sediments’ often projected onto the provincial archaeoscape (an elite ‘backfill’ of sorts), counter-archaeologies (especially those of indigenous and migrant communities) alluded to within each text begin to come to the fore. In essence, by unsettling these layers, this paper provides access to highly local and often syncretic ways in which the 19th-century Gulf of Antalya archaeoscape was viewed and experienced by non-elite inhabitants.

2337. THE MEMORY OF A DISPERSED HERITAGE: MATERIAL REMAINS FROM ANTIOCH AND ITS VICINITY

**Contribution format:** Oral  
**Contribution authors:** Ezgi Erol (Transcultural Studies - University of Applied arts Vienna | Art Theory and Cultural Studies - Academy of Fine Arts Vienna)

How can we write the history of an excavation within its colonial context? What happens when an archaeological site is fragmented and scattered across continents—can these dispersed objects still tell a coherent story? What issues arise in contemporary historiography when objects are removed from their origin and housed in Western museums, far from their homeland? Finally, how can the memory of these forgotten narratives, shaped

by epistemic violence, be revived and mobilized? In this presentation, I focus on the French Mandate excavations at Antioch-on-the-Orientes. The Iskenderun region (now Hatay, Turkey, bordering northern Syria), formerly part of the Aleppo Vilayet in the Ottoman Empire, became a major center of archaeological activity under the French Mandate (1920–1939). During the 1930s, French and American archaeologists collaborated on excavations, with Princeton University leading archaeological research. Many mosaics were uncovered, cut into sections, and distributed to more than 30 museums across North America. In my presentation, I examine the process of cutting and distributing mosaics as an epistemological tool that reflects colonial practices—practices that continue to shape museological approaches today. Therefore, I focus on both the presentation and contextualization of these mosaics and their forgotten biographies. My research draws on archival materials and legacy data from various collections.

189. VINCA FASHION ANFD BALKAN TODAY - AFTER 7000 YEARS STILL HERE

**Contribution format:** Poster  
**Contribution authors:** Jadranka Ahlgren (Društvo antikvara Srbije / Serbian Antiquarian Society | Iženjerska komora Srbije, IKS / Serbian Chamber of Engineers,IKS)

Poster (pictures speak) about Starcevo and Vinca Neolithic fashion design. The poster treats similarities I found in costume design of Neolithic and traditional Balkan women’s folk dress today (ex YU territory), like in one-piece linen long dress (“Košulja”), winter jacket with oblique joints (“Kaftan”), low set soft belt (“Tkanica”), in gaiters, aprons, Red Fez cap, and, “Elibelinde”-“hand on the hips”, women’s posture typical for Balkan folk dance - goddess in the Anatolian carpet weaving tradition, and similar. Because of lot of the material, I have a big poster, too, look here: [https://www.academia.edu/130413029/Vinca\\_culture\\_and\\_Balkans\\_today\\_POSTER\\_II](https://www.academia.edu/130413029/Vinca_culture_and_Balkans_today_POSTER_II) Point is at Vinca woman functional reasoning! She was fishing and hunting, by throwing small, handy nets with shells-weights! She was hunting alone. That supports Hualapai tribe, Great Canyon, and many other USA Indian tribes’ women, wearing of a beaded; diamond net like, capes, which they feel as magical protection – must be hunting nets in the past (gave security – food)! Blombos Cave diamond fishing net schemas, engraved in the Ochre stone from 73000 BC, South Africa, and later similar finds from Middle Paleolithic caves support that too! Net were around bodies, do not disturb, hands were free! The figurines represent that are from Vitkovac Field, 5500-4500 BC, col. of National Museum Kruševac. One, high 5,3 cm, terracotta (T.I 1969-71, number 399), wear a small handy fishing net around the hips, tied in the front, and the other, high 6,5 cm, clay, painted red (T.I.2001, number 39) tied on the back. The both nets are with a lot of big shells. Tradition of wearing front and back aprons exist in Serbia today.

368. REVISITING KATSIMIDI: NEW PERSPECTIVES ON AN ATTIC FRONTIER SITE

**Contribution format:** Poster  
**Contribution authors:** Robert Wagman (University of Florida)

In this presentation we offer a new assessment of the Katsimidi site on the NE Attic frontier, focusing on some previously unnoticed features of the Late Classical complex and a nearby cluster of later structures, also unnoticed, which attest to the area’s continuous use into early modern times. Sitting at an elevation of 850 masl, on a rocky ridge overlooking the Oropian plain, the Katsimidi fort guarded the road that led from Oropos to Athens through the northern end of the Decelea Pass. Although very little survives today of this once strategically important thoroughfare (Thucydides 7.27), substantial remains of another road branching off from it in the fort’s direction can be clearly observed on the east slope of the cliff. Still mostly unpublished except for brief notices by Milchhöfer (1895) and Ober (1985), this road shows some interesting features that call for a more detailed study. In particular, our discovery of a rock-cut niche near one of the road’s switchbacks seems to indicate the existence of a hitherto unknown cult in this area. Cults associated with lookouts and hilltop military installations are not unknown in Attica. Here, however, the presence of springs along the ascent to the fort might also suggest the worship of a nature deity, such as a local nymph. This possibility is reinforced by a cluster of 3 Post-Classical rubble structures near the lower course of the road, which seem to include a springhouse, a water reservoir, and possibly a small chapel. In our presentation we give a preliminary discussion of this new evidence, arguing that the Katsimidi road—thus far interpreted, somewhat restrictively, as a service road to the fort by the same name—should be re-examined in light of its wider archaeological and topographical context.

1058. MEMORIES ENGRAVED IN BONES: DECODING THE PAST IN VILA FRANCA DO CAMPO, SÃO MIGUEL (AZORES, PORTUGAL)

**Contribution format:** Poster  
**Contribution authors:** Daniela Cabral (Vila Franca do Campo Municipality (São Miguel, Azores) | Laboratory of Forensic Anthropology, Centre for Functional Ecology, University of Coimbra)

This study presents an interdisciplinary investigation of the “Skeleton of the Externato,” a set of human remains whose history has been transmitted through oral tradition. According to the accounts, the remains belonged to



the former butler of Dr. Urbano Mendonça Dias, a man of African descent who, upon his early death, bequeathed his skeleton to the educational institution founded by his employer. However, the circumstances surrounding this donation, as well as the identity and life story of the individual, remain unknown. The research combines historical sources, bioarchaeological, and anthropological analysis to reconstruct the biography of this individual and understand the processes that led to his transformation into an object of study. The study draws on institutional documents, notarial records, and journalistic sources to verify the authenticity of the narrative and provide context for the donation. In parallel, an osteobiographical analysis will offer data on age, sex, stature, confirm population affinity, and reveal potential life and death markers. In addition to clarifying the history of this individual, the investigation aims to reflect on his significance and impact today. By restoring voice and identity to a previously anonymous figure, the study contributes to a broader understanding of the dynamics of memory and forgetting, as well as to a more critical approach to the preservation of human remains in historical and educational heritage.

**1572. THE (NOT SO) NEW NOMADIC AGE: THE MATERIAL EVIDENCE OF FORCED DISPLACEMENT OF 19TH CENTURY INDIGENOUS GROUPS OF SOUTHERN CHILE**

**Contribution format:** Poster  
**Contribution authors:** Oscar Toro (Universidad Alberto Hurtado)

The Pehuenche indigenous of the upper Biobío River were compelled to settle towards one of the two slopes of the southern Andes in the second half of the 19th century, when the geopolitical borders between Chile and Argentina were defined. However, Pehuenches usually moved through the western inter-Andean valleys and the eastern pampas. The surroundings of the Chilean forts of Liucura, Lonquimay, Nitrito and Lolco, were surveyed, all in the vicinity of the headwaters of the Biobío River, with their locations relatively well described through literature and archives, as well as some probable sites where battles between Chilean and Argentine troops occurred. The landscape and the places chosen for the establishment of national-state military detachments in these mountainous areas are keys to assessing ephemeral and hard-to-find archaeological evidence. This material presence from the Chilean state, not seen until that date, caused a series of accommodations of Pehuenche groups, from both sides of the Andes, as a bloodier military campaign was taking place at the same time in Argentina. How can archaeology contribute to making these forced migratory processes visible, and what alternative narrative can emerge from a bottom-up view of these socio-historical processes? I suggest that the consequences of the forced mobilities of indigenous populations in the past are reflected in the current life of the Pehuenche comunidades reflected in the material remains, the landscape, oral stories, and fluid memories. This long-term historical process frames in the times of expansionist capitalism, a prelude to the current global capitalism, thus the so-called “new nomadic era” has its roots long before the present times.

**5 OUT OF THEIR ELEMENT: NOVEL METHODS OF ISOTOPE ANALYSIS TO INVESTIGATE HEALTH AND DISEASE IN THE PAST**

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Discussion session  
**Session keywords:** isotopes, paleopathology, bioarchaeology, trace elements, health, disease  
**Session organisers:** Noel Hinchá – Naomi Kilburn (Durham University) – Sangyu Shen (University of Toronto)

**SESSION ABSTRACT**

Isotope analyses of human hard tissues are well established within archaeology as a means of reconstructing and interpreting past dietary and mobility patterns, with recent research increasingly focused on investigating biocultural aspects of past lives—such as the growing body of work on breastfeeding and weaning practices. In these studies, isotopes serve as proxies for the external environment in which the human body developed, reflecting the metabolic and geological characteristics of consumed food and water. As isotopes enter the body, they fractionate and become part of newly synthesized tissues, thereby preserving information about the in vivo environment. This creates unique opportunities to make inferences about past diseases and health statuses. Nonetheless, the analysis of pathological conditions has traditionally been avoided due to a range of theoretical and methodological complexities and challenges. Recent developments in the field, however, illustrate the potential of considering pathophysiological factors when interpreting isotope values. Innovative analyses of conventionally used elements—like carbon and nitrogen—as well as emerging research on less commonly applied isotopes, like sulfur and heavy metal trace elements, are expanding the breadth and depth of isotope analysis as a robust tool in paleopathology. Groundbreaking methods utilizing multiple isotope systems demonstrate great capacity to reveal nuances in the interpretation of health and disease etiologies and evolutions. In this session we invite

contributions that employ novel isotope approaches to explore biocultural aspects of health and disease in the past. We are particularly interested in multidisciplinary studies incorporating recent advancements in biomolecular techniques with historical and material evidence. We hope papers will showcase how isotope analyses can provide significant insights into the impacts of diseases on both populations and individual life histories, while highlighting promising new avenues in isotope methods and frameworks. We encourage discussion on these understudied relationships between isotopes and human health.

**CONTRIBUTION ABSTRACTS**

**1574. OXYGEN STABLE ISOTOPE ANALYSIS OF BURROW HILL CEMETERY, SUFFOLK**

**Contribution format:** Oral  
**Contribution authors:** Yueying Li (—)

This study examined the oxygen isotope correlation of Burrow Hill Cemetery in East England by analyzing the characteristics of the cemetery and the oxygen isotope levels of 42 individuals buried there. This data was then compared with the findings of other cemeteries in East England during the Anglo-Saxon period. In addition, the  $\delta^{18}\text{O}_{\text{dw}}$  value obtained using the calibration equation was compared with local water isotope levels, which led to the inference that there was more migration at Burrow Hill. Seven of them are likely to have grown up not in the UK, but in warmer regions such as mainland Europe or North Africa, close to the Mediterranean. Other individuals may be from the West of the UK, Ireland or Northern/Eastern Europe. However, due to correction errors and other factors, it cannot be absolutely ruled out that these people are not local. In addition, the study conducted a systematic study of Burrow Hill Cemetery, which included a number of health indicators. The study found that the average height of Burrow Hill’s studied samples (male 186.2cm, female 173.4cm) was higher than that of Sutton Hoo, Staunton Meadow and Ipswich. This may indicate that the inhabitants of Burrow Hill were generally better nourished than the inhabitants of Anglo-Saxon settlements of the same period. However, 56 percent of the individuals in the sample had incomplete enamel, which is in conflict with the above view, and may be due to the small size of the individuals used in the study, which is not fully representative of the overall situation. This study can provide reference for extracting as much data as possible in the case of limited information. It was the first to examine Burrow Hill, providing material for future studies of the site.

**662. ASSESSING THE USE OF HUMAN AUDITORY OSSICLES AS A SOURCE OF IN UTERO STABLE ISOTOPE DATA**

**Contribution format:** Oral  
**Contribution authors:** Naomi Kilburn – Rebecca Gowland – Janet Montgomery – Darren Gröcke (Durham University) – Debbie Wilkinson (University of Aberdeen) – Julia Beaumont (University of Bradford)

The first 1000 days of life are a crucial period of developmental plasticity for humans. Stressors experienced during this phase, including in utero exposures, impact the health and well-being of individuals throughout their entire lifespan. A potential avenue for studying this period of life in individuals who survive beyond infancy is the isotopic analysis of human auditory ossicles. These tiny ear bones are considered fully ossified by 24-26 weeks in utero, prior to dental development, and do not remodel—though they do have large medullary cavities that become gradually filled in during early life. The exact time frame for the completion of this secondary mineralization phase is not known, nor is the impact it could have on stable isotope values. To determine if auditory ossicles can provide in utero isotopic data, the bone mineral density (BMD) of archaeological ossicles from non-adult individuals (in utero – 5 years of age) was derived from microCT scans. BMD data was then integrated with  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  stable isotope results from incremental dentine and auditory ossicle samples of the same individuals. Here we present the preliminary results of these analyses and offer some initial insights into the use of auditory ossicles as a source of in utero isotope values.

**2241. USING FUZZY CLUSTERING TO EXPLORE ISOTOPIC VARIATION AMONG ARCHAEOLOGICAL ATTRITIONAL AND CATASTROPHIC JUVENILE DEATH ASSEMBLAGES, KUÉLAP, PERU**

**Contribution format:** Oral  
**Contribution authors:** J. Marla Toyne – Christina Trent (University of Central Florida) – Donovan Adams (University of Central Florida)

There are two areas wherein stable isotope analysis of diet struggle to engage methodologically and interpretatively: juvenile remains and paleopathological variation. This presentation examines the variation between juvenile bone dietary stable isotopes considering the nature of two different mortuary contexts and innovates by applying a fuzzy clustering approach for analysis. With attritional burials, the expectation is that the individuals died of natural causes, which could affect nitrogen stable isotope values. With those juveniles killed in a massacre



event, we would expect that their dietary isotopic signatures would not be as impacted by pathological processes. At Kuelap, in highland Chachapoyas during the late prehispanic period (900-1535 A.D.), a juvenile sample of 83 individuals are divided into attritional (n=50) and massacre (n=33) groups. Traditional statistical analyses (Mann-Whitney U) indicate significant differences between each group suggesting that either juveniles had different diets in each group or that nitrogen variation could have been due to the influence of pathological conditions in the attritional group. Unsupervised possibilistic fuzzy c-means clustering is a soft clustering approach that allows individuals to be members of multiple clusters to differing degrees. This technique provides a more robust and nuanced approach to examining inter and intra-individual/group variation than traditional statistical analyses. Fuzzy clustering evaluation of the data support this group-based division but also allow us to explore additional factors such as age subcategories, burial context, and osteological features that contribute to the isotopic variation. Further, the membership and typicality degrees of this approach allow for the opportunity to critically examine the similarities and differences between individuals by removing a priori assumptions of group membership.

**1004. THE EFFECT OF EARLY-LIFE VITAMIN D DEFICIENCY ON SEQUENTIAL DENTINE  $\delta^{13}\text{C}$  AND  $\delta^{15}\text{N}$  VALUES IN HUMANS**

**Contribution format:** Oral  
**Contribution authors:** Jacob Griffith (Archaeology, Environmental Changes and Geo-Chemistry, Vrije Universiteit Brussel) – Olivia Cashmere – Jason Laffoon (Faculty of Archaeology, Leiden University) – Barbara Veselka (Archaeology, Environmental Changes and Geo-Chemistry, Vrije Universiteit Brussel)

Sequential dentine sampling is becoming an ever-increasing tool for reconstructing the early lives of past individuals. Serial  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  values have been used to reconstruct weaning ages and strategies, dietary changes in childhood, nutritional stress periods, as well as age-related hormonal changes within humans. However, there is ongoing debate about whether vitamin D deficiency (VDD) also affects  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  values. If an individual experiences VDD during tooth formation, the developing dentine can become defective and hypomineralised, forming interglobular dentine (IGD). While VDD is known to alter dentine’s mineral structure, its impact on the isotopic composition of collagen formed during the same period is currently unknown. To explore this potential relationship, we sequentially sampled the dentine of eight teeth from individuals dating to 17th–19th century Belgium and the Netherlands. These teeth had previously undergone microscopic analysis, which identified significant IGD associated with VDD. A control sample from the same population, free of IGD, was also included. Using both slicing and puncture methods, we analysed  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  values to assess potential differences. The results revealed no notable differences in  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  values between IGD-affected and unaffected samples, both between individuals and within the same tooth. Our preliminary findings suggest that when reconstructing life histories from serial  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  values, considering the effect of VDD on given results is not necessary.

**6 ONTOLOGICAL AND EPISTEMOLOGICAL INTERPRETATIONS INTERTWINING ARCHAEOLOGY, LANDSCAPE AND THE SKY**

**Session theme:** 2. Intertwined Epistemologies: Transcending the Data – Theory Divide  
**Session format:** Regular session  
**Session keywords:** Archaeoastronomy, Archaeology, Astronomy, Skyscape, Ontology, Ethnography  
**Session organisers:** Jose Balbi (Colchester Archaeological Group) – Javier Mejuto (Universidad Nacional Autónoma de Honduras) – A. Cesar Gonzalez García (Institute of Heritage Sciences (INCIPIT), Spanish National Research Council (CSIC)) – Hans Martz De La Vega (National School of Anthropology and History, Mexico) – Stanislaw Iwaniszewski (Escuela Nacional de Antropología e Historia - Instituto Nacional de Antropología e Historia)  
**Session discussant:** Eduardo Miguel Bufalino (ISFD Instituto Superior de Formación Docente)

**SESSION ABSTRACT**

As in the last six years, this session corresponds to the SEAC-EAA community. The convolution between data obtained in the field and novel approaches from complementary academic studies provide key information to approach past cultures. The landscape and the celestial realm play a fundamental role, intertwining in their ontological and epistemological interpretations to result in a holistic cultural interpretation. The main characteristic of these studies is their interdisciplinarity, through which we attempt to study and understand different cultures, to comprehend how they interpreted the skies and the landscape from their relationship with elements of ancient Architecture and Archaeology. Key questions should go beyond the mere identification of particular celestial events (such as solstices or heliacal rising), but try to answer social questions such as, what was the

way of life, practices and world views of the people in those past cultures through the use of new techniques and their connection with the landscape and the sky. Who were the people responsible within each community for sky watching? Was their knowledge sacred and restricted, or open to the whole community? In this session we encourage presentations that address how Archaeoastronomy and in particular the study of orientations, alignments and/or the location of monuments in the landscape and their possible relationship with the sky can provide clues to understand cases of change/resilience in different societies. Given these possibilities, the participation and contribution from different archaeological sciences is encouraged and we welcome these different visions that help answering the questions posed earlier and many others.

**CONTRIBUTION ABSTRACTS**

**146. ALL SAINT’S CHURCH, ESSEX, UNITED KINGDOM; THE SEARCH OF THIS NORMAN ORIGIN**

**Contribution format:** Oral  
**Contribution authors:** Jose Balbi (Colchester Archaeological Group)

The presentation deals with the History and archaeological discoveries related to the old Fordham Church, in Essex, United Kingdom. Oral tradition tells that in the old town, and after the arrival of the Normans to Great Britain (1066), a large amount of land was donated by William the Conqueror himself to different abbeys, mainly in the north of present-day France. Many of these stories were confirmed although in reality many of the original buildings were remodelled and even date back to the time of the Roman occupation (until 410 AD). We have carried out a research on the origins of All Saints’ Church, which is believed to have been founded in 1086. Our work includes consultations with the library of Bec Abbey (Normandy-France), the Domesday Book in the British National Archives (London-UK) and a series of bibliographies and correspondence confirming actions carried out in the 11th century, posterior correspondence and publications, in addition to theories about its Roman origins which are complemented by the excavations we are currently carrying out nearby and which undoubtedly include antecedents of the Roman Occupation of Britain. Our research reveals more about the heritage of our town and its cultural relationships.

**1176. LANDSCAPE AND SKYSCAPE OF IRON AGE GALICIA. THE CASE OF CASTRO OF ELVIÑA (A CORUÑA, SPAIN)**

**Contribution format:** Oral  
**Contribution authors:** Andrea Rodríguez-Antón – Samuel Nión Álvarez (Institute of Heritage Sciences (INCIPIT-CSIC)) – Alberto Fachado Baña (Independent)

Castro de Elviña (A Coruña, Spain) is an Iron Age oppidum located in a small hill close to sea and terrestrial communication routes. Elviña is defined by its monumentality, highlighted by massive defenses and accesses, as well by a close relationship with Mediterranean communities, especially with Gades. It is also noteworthy the presence of several religious and collective buildings, which are not particularly common in northwestern Iberian Iron Age. This work is an approach to the relationship between architecture and cultural expressions in northwestern Iberian Iron Age (Castro culture) with the surrounding landscape and skyscape. Castro de Elviña has been chosen as an excellent example to carry out an approach from cultural astronomy, due to the aforementioned unusual presence of buildings of a collective and/or cultic nature. Additionally, this settlement was strategically located, which favoured the control of the natural communication and maritime trade routes due to its proximity to the north-western coast of A Coruña. The case of Elviña can provide a better understanding of the cosmovisions of its inhabitants, as well as propose new perspectives on trade contacts beyond the Gulf of Santa Cruz and the interaction of cultural practices. Additionally, along with previous archaeoastronomical works, through this study we have explored the potential relationships between the sky and the societies that inhabited the land of modern Galicia during the 1st millennium BC in order to provide valuable information about whether astronomy influenced crucial aspects such as religion, politics or time-keeping, how and why. Finally, we have explored new perspectives on cultural interactions, power and social dynamics, according to the influence of the Punic communities of Cádiz on the cosmovision and local beliefs of the peoples of Elviña.

**671. TLALOC’S CALENDAR ON CERRO TLALOC, MEXICO**

**Contribution format:** Oral  
**Contribution authors:** Stanislaw Iwaniszewski (Escuela Nacional de Antropología e Historia, Mexico City)

Long before the Spaniards imposed the Julian and later the Gregorian calendars upon New Spain, Mesoamericans had developed their own and unique way of counting time and negotiating space through native calendar systems. Also, the Mexica (=Aztec) time-place reckoning was not just a part of their culture integrated but a specific perspective that integrated cosmological, divinatory-numerological, and astronomical-calendrical epistemologies. Their hilltop ceremonial sites were not just locations for religious-political ceremonies, but unique hubs that linked



agricultural fertility and the religious legitimation of rulers. One of the best-known examples is Cerro Tlaloc in the Valley of Mexico. The ritual precinct atop Cerro Tlaloc unveils various calendar patterns that have not been discussed before, seemingly related to the figure of Tlaloc. The paper again discusses the possible meaning of the site’s alignments. The paper explores Mexica time-place reckoning as a particular way in which Mexica priests have attempted to conceive their relationship with their surroundings through the aims of the calendar. In conclusion, the Mexica skyline is not just another set of alignments, but a significant map of meanings in the sky and prominent landforms. What seems to be specific for the Mesoamerican is that these meanings were also negotiated within their calendars or calendrical time reckoning epistemology adding a weight of importance to their unique perspective.

**693. NEW OPPORTUNITIES FOR ARCHAEOLOGY IN A SPECIFICALLY DESIGNED DEGREE PROGRAM IN CULTURAL ASTRONOMY**

**Contribution format:** Oral  
**Contribution authors:** Javier Mejuto – Eduardo Rodas-Quito (Universidad Nacional Autónoma de Honduras)

Since the beginning of studies linking astronomical knowledge and archaeological contexts in Europe, there has been a tense relationship between archaeologists and cultural astronomers due to the lack of epistemological and methodological convergence. In the European case, what has historically been called Green Archaeoastronomy involved cultural astronomers working in European contexts who favoured methodologies based on statistics and topography at the expense of the necessary cultural interpretations. This was one of the major criticisms to Cultural Astronomy by European archaeologists. The clearest historical example of this was the case of Sir Norman Lockyer and his analysis of the Amun-Re Temple at Karnak, Egypt. Therefore, specific training in Cultural Astronomy, in which the currently predominant approaches in the astronomical analysis of cultural contexts converge, taking into account the points of view provided by Archaeology and Astronomy with their respective epistemologies, is necessary for the development of Cultural Astronomy as a discipline and presents an opportunity for Archaeology to explore and analyze new material contexts from a new perspective. In this paper we present the main aspects of the Bachelor’s degree program in Cultural Astronomy that is beginning at the proposal of the Department of Archaeoastronomy and Cultural Astronomy of the Faculty of Space Sciences of the Autonomous University of Honduras and the possibilities that are opening up in the Central American region for the development of this disciplinary field in collaboration with professionals in Archaeology.

**998. THE ORIENTATION OF NABATAEAN TOMBS FROM HEGRA**

**Contribution format:** Oral  
**Contribution authors:** Antonio César González-García (Institute of Heritage Sciences (INCIPIT, CSIC)) – Juan Belmonte (Instituto de Astrofísica de Canarias) – Andrea Rodríguez-Antón (Institute of Heritage Sciences (INCIPIT, CSIC)) – Munirah Almushawh (The Royal Commission for AlUla) – Maitane Urrutia-Aparicio (Universidad Europea de Canarias)

In earlier works at Petra, and elsewhere in Nabataea, we could verify that the Nabataeans built their cultic spaces in such a way that they included orientations towards sunrise on relevant moments of their calendar. Significantly, several temples, tombs, cenotaphs and processional ways seemed singularly linked with the winter solstice and the equinoxes. Often considered the southern capital of the Nabataean Kingdom, Hegra is located at the brink of the AlUla Valley Oasis. There the Nabataeans carved nearly a hundred tombs in the sandstone cliffs that surround the city center. In a recent field campaign on site, we measured the orientation of Nabataean tombs and sanctuaries in the area. This talk presents the analysis and interpretation of the data on the orientation of 113 tombs, including all monumental ones, the largest coherent set of Nabataean tombs ever analyzed. The results show that the tombs were not randomly orientated but followed a series of patterns, most probably emphasizing key moments within the framework of the Nabataean lunisolar calendar religious festivals, and, on occasions, also the local landscape.

**703. ANALYSIS OF THE CIVIC-CEREMONIAL CENTRE OF TIKAL IN THE CLASSIC PERIOD AS A MODEL FOR THE K’ATUNSCAPES (TWIN PYRAMID GROUPS)**

**Contribution format:** Oral  
**Contribution authors:** Hans Martz De La Vega (Escuela Nacional de Antropología e Historia) – Miguel Pérez Negrete (Centro Regional INAH Guerrero)

The great Maya cities of the Preclassic and Classic periods, located in present-day Mexico, Guatemala, and Belize, featured civic-ceremonial centres that included architectural complexes such as triadic groups and acropolises, where rulers of the dynasties were buried. These urban environments are characterized by common architectural patterns, guiding axes, and complex urban designs, with both similarities and local particularities. Their study requires consideration of fundamental and symbolic classification systems, the physiognomic properties of the

landscape, and the cyclic and regular movements of celestial bodies, which form a common reference framework for other processes and events that provide coherence to the Maya universe. We will address the civic-ceremonial centre of Tikal, composed of a large plaza flanked to the north by an acropolis with triadic groups from different periods, and to the south by another acropolis featuring buildings with nine doorways. This centre is one of the most studied within Maya civilization, which has led to various interpretations. One of these suggests that it served as the model adopted by the rulers of the Late Classic period for the design of the well-known Groups of Twin Pyramids, which we have termed k’atunscape, found so far only in the cities of Tikal and Yaxhá. While the main characteristic of these k’atunscapes is the orientation of their structures and axes, both in the “east-west” and “north-south” directions, no precise data or thorough analysis has yet been presented on this subject. In this contribution, based on our fieldwork, we aim to provide such information and, based on that, discuss the proposed interpretation. As those familiar with cultural astronomy know, the orientations in question are better understood when considering, primarily, the dates related to the tropical year and the positions of the stars in the night sky, as will be demonstrated once again in this study.

**1116. USE OF THE TELESCOPE FOR ARCHAEOASTRONOMICAL RECORDS**

**Contribution format:** Oral  
**Contribution authors:** Barthélemy D’Ans Alleman (Instituto Peruano de Astronomía | Planetarium María Reiche)

In archaeoastronomy, it is necessary to know the landscape profile of an observation point in order to define where the Sun, the Moon, the planets, the stars or any celestial object of interest for cultural astronomy is located. To do this, an astronomical horizon is defined centred on the observed point, which is tangential to the Earth’s surface using the horizontal or local coordinate system (azimuth and altitude). To do this, a compass and a clinometer are used as a first approximation, with which the azimuth (compass) and altitude (clinometer) of the landscape profile are directly measured. The most accurate traditional method to obtain this profile is the use of the theodolite, with which measurements of the Sun are obtained at an exact moment from the observation point used (Aveni 2005), so we can astronomically adjust its location based on astronomical tables, in equatorial or absolute coordinates (right ascension and declination), with this measure we obtain the precise directions of the azimuths and heights of the measured landscape (Martz de la Vega et al. 2016). During the year 2024 and early 2025, recordings were made with telescopes, mainly to record on video the setting of the Moon during important lunar stops over notable elements of the landscape and/or archaeological structures. With the telescope well positioned to follow a star, the absolute coordinates are easily obtained at the measured times. In this work, the precision of this method of measurement with a telescope will be discussed, and the advantages and disadvantages of using the telescope as a measuring instrument will be presented.

**1521. STONEHENGE & TIMING TYPHON**

**Contribution format:** Oral  
**Contribution authors:** Vance Tiede (Astro-Archaeology Surveys | Yale University)

Two new empirical findings are presented to update Hawkins’(1964) proposal that Stonehenge (TPQ 3000 BCE) was designed as a “Neolithic Computer” to time eclipse danger periods based on both analogue horizon alignments to the solstices ( $\pm 24^{\circ}8'$ ) and lunar standstills ( $\pm 19^{\circ}8'$  &  $\pm 29^{\circ}8'$ ), as well as digital encoding of luni-solar cycles in its architecture, viz.: 19 Bluestone(s) Horseshoe representing the 19-year Metonic (Lunar Phase) Cycle; 56 Aubrey Hole(s) Circle for the 18.6-year Regression of the Lunar Nodes Cycle ( $56 = 18+19+19$ ); and Sarsen Circle’s 29. 5 uprights (Sarsen #11 is 50% in Length:Width:Height), 29 Z & 30 Y Holes,  $29+30 = 59$  Bluestone(s) Circle representing a double-month which averages the 29.5-day Lunar Synodic Period. The first new numerical artifact proposed is that the 5:12 Width:Length Ratio of the Station Stone Rectangle was chosen from an infinite number of possible rectangle ratios because each interior 5:12:13 Pythagorean triangle (Dibble 1976) uniquely delineates in space (Area = 30 Ratio Units<sup>2</sup>, Perimeter = 30 Ratio Units) the nearest integer (30) to the time of the moon’s 29.5-day Synodic Period. The second new numerical artifact emerged from testing the efficacy of Hawkins’ eclipse warning proposal by modeling midwinter full moonrises over the Heelstone in Starry Night Pro planetarium software for midwinter lunar eclipses visible at Stonehenge, 3000–1500 BCE (Espenak 2015). The 56-year Stonehenge Cycle and 19-year Meton (of Athens, c.432 BCE) Cycle working in tandem forecast up to a tetrad of midwinter total lunar eclipses observable at Stonehenge (e.g.: 31 Dec 1583 BCE; 10 Jan 1564 BCE; 11 Jan 1545 BCE; 10 Jan 1526 BCE). The numerical findings both support Hawkins’ eclipse warning interpretation, and elucidate Eudoxus’ (c.370 BCE) otherwise enigmatic report that a “56-sided polygon is said to belong to Typhon,” the Greek demon-god Τυφῶν whose blood-red shadow eclipses the moon (Plutarch c.120 CE).

**147. ALEXANDRIA IN EGYPT. ITS LIBRARY AND THE ANCIENT CITY**

**Contribution format:** Poster  
**Contribution authors:** Jose Balbi (Colchester Archaeological Group)



The fate of the city of Alexandria is linked to that of its Library, which served for centuries as the heart of the city. Created in the Hellenistic period it was the fundamental element with which the satrap Ptolemy I Soter continued the diffusion of Hellenism as it was conceived by Alexander. There are no great certainties as to the place of its foundation, but it is determined by various authors and chroniclers of the time that there was a main one and a smaller one next to the Serapeum. This indicates to us from the beginning not only the cultural but also the religious relationship of the Library. Some authors understand the issue in such a magnitude that they think that the Library had the objective of making Alexandria the successor of Athens. We will study the current city of Alexandria and the plan of what was presumably the ancient city. We have to highlight the most emblematic places and the possibility of locating them in the current city. We chose the following: • The Lighthouse (Reference 1) • The Greek Port (Reference 2) • The Main Library (Reference 3) • The Market (Reference 4) • The Palace (Reference 5) However, looking at the modern map, we can add the following places to complete what could have been the ancient city: • The Fort (built with remains from the collapse of the Lighthouse) • The Underwater Archaeological Zone • The Ancient Cemetery • Pompey’s Pillar • The Modern Library Our research takes us to places in the city that are mostly not advertised for tourists, where archaeological remains from different periods can be found today and which allow us to reconstruct the experiences of ancient culture as recounted by both Historians and Historical Figures who lived in this city.

7 SURVEYING THE PAST, PROSPECTING THE FUTURE OF BALKAN ARCHAEOLOGICAL HERITAGE

**Session theme:** 8. Along and across the Danube!  
**Session format:** Regular session  
**Session keywords:** Archaeological Survey, Methodology, Geophysics, Remote Sensing, Future directions  
**Session organisers:** Miroslav Maric (Balkanološki Institut. Srpska Akademija Nauka i Umetnosti) – Miroslav Kočić (Centar za Arheologiju “Dragoslav Srejović”. Univerzitet u Kragujevcu) – Žarko Tankosić (Department of Archaeology, History, Cultural Studies and Religion. University of Bergen)

SESSION ABSTRACT

Over the past two decades, a multitude of new archaeological surveys in the Balkans have expanded our knowledge of human activities in the past. The rapid development and wider availability of new data collection, manipulation and interpretation technologies have, alongside increasing personal computing capabilities, created new, immense quantities of spatial information containing data on archaeological traces. The systematic archaeological survey, although usually the first step needed for a better insight into the past human societies, is often overlooked or underused in later phases of archaeological research. Often underfunded and facing the reality of rapid depopulation and disuse of land which is reclaimed by nature, archaeological survey projects in the Balkans need to find new pathways for a more encompassing research that will ensure the timely identification, preservation and utilisation of rich archaeological evidence present in the region. The goal of the session is to bring together archaeological survey experts dealing with the Balkans and Southeast Europe region to share experiences, knowledge, methodologies and problems and potentially create groundwork for new scientific cooperation in the area. Our focus is the networking of archaeologists that can share experiences, create new ideas and developments to be applied in the advancement of the field. Ideas that can be equally implemented by teams already active in the fields, but also applicable for the teams yet to be created and invested into this subject in the years to come.

CONTRIBUTION ABSTRACTS

270. THE NORWEGIAN ARCHAEOLOGICAL SURVEY IN THE KARYSTIA (NASK): METHODOLOGICAL AND INTERPRETIVE INSIGHTS IN RETROSPECT

**Contribution format:** Oral  
**Contribution authors:** Paschalis Zafeiriadis (Norwegian Institute at Athens - University of Bergen) – Žarko Tankosić (Department of Archaeology, History, Cultural Studies and Religion. University of Bergen)

The Norwegian Archaeological Survey in the Karystia (NASK) involved the intensive and systematic survey of the Katsaronio Plain, the largest expanse of arable land in southern Euboea (i.e., the Karystia), a region of strategic significance between the Greek mainland and the Cyclades. NASK identified numerous previously unrecorded sites and findspots, spanning from the prehistoric to the Byzantine periods, significantly enriching our understanding of the region’s archaeological heritage, particularly given the limited number of prior systematic excavations. As the most recent in a series of field surveys in the Karystia, NASK builds on previous work characterized by

varying geographical scopes, methodologies, and intensities, collectively establishing the Karystia as one of the most thoroughly surveyed regions in Greece. This paper presents the results of NASK and examines diachronic settlement patterns and landscape use in this part of Euboea, incorporating data from earlier surveys in areas adjacent to the Katsaronio Plain where necessary for interpretive synthesis. Additionally, we discuss methodological aspects of the survey, and the implementation of digital data recording procedures and protocols designed to enhance the speed and efficiency of fieldwork.

796. WITHOUT GIS, THE MINES ARE DARK AND FULL OF ERRORS: TRACING THE LATE ROMAN MINING LANDSCAPE OF MOUNT RUDNIK

**Contribution format:** Oral  
**Contribution authors:** Marija Kalicanin-Krstic (Cultural Heritage Preservation Institute, Kragujevac) – Marija Marić (University of Novi Sad, Department of History, Faculty of Philosophy)

The Central Balkans’ geoarchaeological heritage has been shaped by centuries of mining and metallurgical activity, posing significant challenges for archaeological research. Continuous use has changed the historic landscape, removing old features and making it harder to reconstruct their timeline. Therefore, analysing recording and overseeing archaeological sites in mining areas have become essential in this scenario. GIS technology has emerged as a fundamental tool for analysing complex landscape transformations and understanding their broader socio-economic implications. Using Mount Rudnik as a case study, where evidence of mining and metallurgical activities spans from prehistory to the present, we demonstrate how spatial analyses facilitate the identification of the Roman imperial domain within Metalla Tricornensia amidst the landscape’s stratification. The application of predefined ArcGIS 10.5 spatial analysis modules has enabled a critical reassessment of previous interpretations regarding the boundaries of metalla and territoria metallorum. A clearer picture of the mining landscape’s organisation has emerged by mathematically simulating spatial relationships between mining structures and ancient sites in correlation with written sources and archaeological excavations. The results of these analyses raise new questions not only about the spatial distribution of mining zones but also about the dynamics of administrative changes in Late Antiquity. A clear pattern emerges in this period: villae rusticae and fortifications form stable spatial units alongside mining and metallurgical centres. The pattern indicates a methodical approach to exploiting and controlling resources, aiding in predictive modelling for finding undiscovered sites. The research highlights the indispensable nature of GIS in examining and conserving mining landscapes. By combining digital technologies with a conventional research approach, it secures future preservation and enhances comprehension of geoarchaeological heritage, reducing its deterioration and disappearance in modern circumstances.

1113. CONTRIBUTION TO ARCHAEOLOGICAL FIELD SURVEY IN SERBIA - EXAMPLES AND RECOMMENDED METHODS

**Contribution format:** Oral  
**Contribution authors:** Aleksandar Aleksic – Jasminka Bogic (Institute for Cultural Heritage Preservation Niš)

An archaeological field survey is usually the first step in the field-conducted archaeological research. It is commonly used for academic archaeological research projects and It was usually used for most of the huge infrastructure development projects (highways, pipelines, etc.). While academic field survey is oriented to a certain archaeological period or a site type, rescue archaeology has a goal to map every archeological site within the boundaries of the development project. The Southeastern part of Serbia is a bordering, mostly hilly and mountainous region, with roughly 21000 km2 and 1,2 million inhabitants. It is economically the least developed region and by far archaeologically unexplored and unresearched, but very rich in archaeology. At the same time, there is only one heritage protection institute with only 2 permanently employed archaeologists trained for archaeological heritage preservation (the lowest number of archaeologists in archaeological heritage protection in Europe)! In the paper, we will present some examples of archaeological field surveys and recommend methods usable for archaeological protection and future research. Data from previous archaeological research, and archaeological analysis of the topography, lidar, and satellite imagery is the first step in the field survey planning with points of interest extracted. The whole area is covered by field walking with a crew in a line formation with at least 8 persons at a mutual distance of 10 – 20 m. Points of interest defined during the prep are walked and checked too. During the process, places that have archaeological material on the surface or consist of other indicators are the subject of separate under-surface tests. Under-surface tests consist of shovel test pits, augering, and/or geomagnetic prospection. All these methods, when well organized and with enough manpower on the field, could be very fast-paced and cover huge areas.



1554. ŠUMADIJA REGIONAL SCALE SURVEYS - RESULTS, CHALLENGES AND FUTURE

**Contribution format:** Oral  
**Contribution authors:** Miroslav Kocic (Center for Archaeology “Dragoslav Srejski” University of Kragujevac) – Ana Koić (Nortwest University, Xian, PRC | Center for Archaeology “Dragoslav Srejski” University of Kragujevac) – Marija Kalićanin Krstić (Center for Archaeology “Dragoslav Srejski” University of Kragujevac)

This paper will present results of almost 9 years of continuous survey efforts located in Central Serbia, in the region of Šumadija. During this time, our team conducted several large scale regional surveys, targeted municipal level surveys and targeted surveys for protective archaeology. During these surveys, we used some of the cutting edge technologies, including combination of the statistically driven regional pedestrian survey designs, geophysical prospection that was incorporated from the start as one of the crucial methods, UAV prospection, LIDAR surveys and geochemical survey methods. While the focus of most of our work was Neolithic and Eneolithic archaeology, surveying will always produce diachronic results that are very much needed for all archaeologist and heritage experts. Combination of these methods showed excellent results, from which some are published and some in the preparation for publication, but also raised some issues. These are especially connected to the uniformity of the results that are required by the legislature, the amount and the type of the data that we are producing, and the question of the comparative nature of the data produced by surveys primarily in Serbia, but also in the neighboring countries. Aim of this paper is not just to present the data produced during the SRGAP (Šumadija Geoarchaeological Project) that is conducted with the University of Pittsburgh, or the protective research conducted for the need of large infrastructural projects, but to start and promote discussion about how do we unify and standardize methodologies and data for future research and comparative studies across the Balkans.

2009. INTEGRATION OF LIDAR, THERMAL, MULTISPECTRAL, AND GEOMAGNETIC DATA IN THE INVESTIGATION OF THE NEOLITHIC SITE CRKVINE

**Contribution format:** Oral  
**Contribution authors:** Nenad Joncic – Adam Crnobrnja (National Museum of Serbia)

Advancements in remote sensing technologies have enabled more precise detection of archaeological sites and structures. This study examines the integration of data collected by drones equipped with LiDAR sensors, thermal, and multispectral cameras with geomagnetic surveys conducted at the Neolithic site of Crkvine near Stublina, which has been excavated since 2006. Geomagnetic surveys conducted from 2007 til 2010 facilitated the initial planning of subsequent excavations, while modern remote sensing methods were used preventively to provide additional information and enhance the understanding of the site’s archaeological context. The primary goal of the research is to assess the potential of combining these technologies for detecting previously unknown structures of the Vinča culture and improving archaeological research methodologies. By comparing and analysing data obtained from various sensors, the study explores how combining these methods can contribute to a better understanding of the site’s spatial characteristics, the identification of hidden structures, and the development of new research strategies. The expected results will contribute to the development of a comprehensive methodological framework for multisensor archaeological research, with broader applications in archaeological practice.

2366. FROM PREHISTORY TO THE EARLY MEDIEVAL - RGK MAGNETOMETRY SURVEYS IN SERBIA

**Contribution format:** Oral  
**Contribution authors:** Christoph Rummel (Römisch-Germanische Kommission)

As parts of various research and infrastructure projects, the Römisch-Germanische Kommission of the German Archaeological Institute has carried out magnetometry surveys at several sites throughout the Western Balkans and across Serbia in particular since the early 2000s. The chronological range stretched from the neolithic to early medieval sites, with some target areas chosen jointly between Serbian and German partners, others suggested in line with Serbian research or heritage management interests or necessities. The success rate of projects were widely varied: some lead to major landscape archaeological research projects or joint excavations that are still ongoing, such as at Romuliana-Gamzigrad. Some successfully published surveys provided new insights into key archaeological sites of the Western Balkans such as at Drenovac. Inevitably, there are also unloved datasets that still await final processing, interpretation and publication. This paper presents an overview of some of the work done and seeks to investigate what factors led to the success of some projects and the relative failure of others. Building on this, it seeks to chart future courses for successful planning and execution of geophysical survey programmes, particularly international collaborative ones.

177. SURVEYING THE FLATLANDS - THE ARCHAEOLOGICAL MAP OF NORTHERN BAČKA PROJECT

**Contribution format:** Oral  
**Contribution authors:** Miroslav Maric (Institute for Balkan Studies, Serbian Academy of Sciences and Arts) – Neda Mirković Marić (Intermunicipal Institute for the heritage protection Subotica)

Geographically, northern Bačka region of Serbia encompasses the territory of six municipalities in the very north of Serbia; namely Subotica, Kanjiža, Bačka Topola, Mali Idoš, Senta and Ada. The area lies on the western bank of the River Tisa, which is a natural boundary, but also a very important communication route in the region, linking the Pannonian plains and the Central Balkans area. It is rich in archaeological sites and has a very long history of archaeological research. Over the past decades, territorially competent Institutions of heritage protection performed individual excavations, surveyed the field and haphazardly collected archaeological data. However, in the recent years, with increased commercial and construction activities in the area a need to incorporate, systematise and enlarge the core of knowledge on the archaeology of the area appeared in order to create a more complete archaeological map of the area which covers 2700 sq. km. The Archaeological map of Northern Bačka project started in 2017 with the financial support of the Serbian Ministry of Culture and the municipalities it covers. Combining old maps, new technologies, satellite imagery, GIS analyses and targeted field walking, over 700 previously unknown sites were detected by now in 5 of the 6 municipalities of Northern Bačka. Experiences gathered over the last 8 years have made it possible to continually improve our approach and better identify possible archaeological features and settlement patterns in the landscape as well as do the predictive modelling of the settlements of specific period. We present preliminary results of the project and identify key results and problems and provide conclusions and suggestions for future research.

1339. EXPERIENCES AND LESSONS FROM ARCHAEOLOGICAL SURFACE SURVEYS IN SOUTHERN BANATE (SERBIA)

**Contribution format:** Oral  
**Contribution authors:** Predrag Novakovic (University of Ljubljana) – Dragan Jovanović (City Museum Vršac)

In Serbian archaeology, the methods of archaeological systematic surface surveys, as they were developed in the 1980s and 1990s, especially in the Mediterranean regions, did not take deeper roots despite their great potential, for example, in large agricultural landscapes in the lowland Danubian area. The reasons are many: the dominant tradition of small-scale ‘research-oriented’ excavations by local institutions, persistence on traditional archaeological topography (judgmental surveying) in searching for new sites in a very simple and inexpensive way (lack of funding, personnel, and other resources), omitting systematic surveying in compulsory preventive archaeological research, and, last but not least, lack of teaching of systematic surveying methods in the university curricula. However, the project of the Department of Archaeology, University of Ljubljana and City Museum Vršac, with continuous, systematic surface surveying since 2010 (13 campaigns), presents the exception. This project is probably the largest systematic surface survey in Serbia. The focus of the project was on two major areas: the surroundings of the town of Vršac and the area between Vršac and Vatin. In our campaigns, which were also field schools for students, various methods and sampling techniques were used (systematic grids and transects with various intervals, systematic and statistically random sampling, grab sampling, and subsurface sampling). So far, the total surveyed area is nearly 2,5 square kilometres large and was checked with more than 6.500 different sampling units, from where nearly 20.000 finds were collected and studied. More detailed empirical results will be presented in the paper. However, it is also necessary to stress some other aspects, particularly the experiences obtained in working in the landscape, which was agriculturally heavily modified in the last two centuries. This can provide valuable ideas for researchers in this or neighbouring regions with similar landscapes.

2385. SYSTEMATIC SURFACE SURVEY OF MEGA-SITES: ADAPTATION AND METHODOLOGICAL INSIGHTS BASED ON THE SILT PROJECT, BANAT, SERBIA

**Contribution format:** Oral  
**Contribution authors:** Caroline Bruyere (University College Dublin)

Systematic surface survey has been used in field archaeology for nearly a century, but social landscapes continue to pose new challenges for methodology development. In the second half of the 2nd millennium BC, communities in the area of modern Vojvodina, Serbia built over 100 monumental settlements which have been grouped within the Tisza Site Group. From 2019-2023, a team from University College Dublin and The Fall of 1200 BC project in collaboration with the Museums of Pančevo, Kikinda, Zrenjanin and Vršac, created the Survey in the Lower Tisza (SILT) project to investigate this network and individual settlement organization. The unique ethos of this settlement network created challenges for archaeological investigation. First, the massive size of the settlements prohibited excavation of significant surface area. Second, the use of earthen architecture and absence of a post-abandonment burning traditions seen in many prehistoric communities of Eurasia meant geophysical data was limited to the identification of pits and ditches. Pedestrian surface survey thus became an essential method



for understanding internal settlement organization. This paper compares the efficacy of two systematic survey methods, adaptations of the grid and the point-transect methods respectively, for the investigation of five Tisza Site Group settlements of different sizes. In addition, the paper will discuss how survey data was integrated with remote sensing, geophysics, and excavation data to develop tailored methodological and analytical approaches for this particular social landscape.

2367. EXPLORING THE PAST: THE ROLE OF MAGNETOMETRY IN BALKAN ARCHAEOLOGY

**Contribution format:** Oral  
**Contribution authors:** Dávid Šálka – Peter Milo – Tomáš Tencer – Michal Vágner – Jan Havelka – Anna Rekemová (MUNI - Ústav archeologie a muzeologie)

In recent years, our Department of Archaeology and Museology, Archaeogeophysical unit has conducted numerous non-destructive geophysical surveys in several Balkan countries. Most of them were carried out in collaboration with Czech expeditions, local institutions, and driven by our scientific interest in the region. Magnetometry was the primary method used, and it has proven to be a fast, effective, and reliable method at sites from different periods, of different extents and in diverse pedological or geological conditions. Especially, motorised magnetometry systems deliver crucial data efficiently, saving time and resources compared to traditional archaeological research methods. Application of magnetometry at sites dating back to Neolithic (settlement in Durankulak and several enclosures in Croatia), roman towns (Plevlja, Kabile), and early medieval centres (Pliska, Preslav) significantly enhanced our knowledge about these sites and understanding of the past. This new data also helps maximise the efficiency of future archaeological research and following steps in cultural heritage protection.

600. REDISCOVERING THE FORGOTTEN: UAV AND GEOPHYSICAL INVESTIGATIONS OF BUCHAREST’S ENEOLITHIC TELLS

**Contribution format:** Poster  
**Contribution authors:** Vasile Opris (Research Institute of the University of Bucharest (ICUB), University of Bucharest | Bucharest Municipality Museum) – Cristina Covătaru – Adrian Șerbănescu – Bogdan Manea (Research Institute of the University of Bucharest (ICUB), University of Bucharest) – Theodor Ignat (Research Institute of the University of Bucharest (ICUB), University of Bucharest | Bucharest Municipality Museum) – Cornelis Stal (Department of Built Environment, HOGENT University of Applied Sciences and Arts)

This study explores the current state of the Eneolithic tell sites in the Bucharest area, integrating historical documentation with modern survey techniques. The five tells (Chitila-Fermă, Măgurele-Movila Filipescu, Măgura Jilavei, Vidra-Măgura Jidovilor and Glina-La Nuci) have been known in the archaeological literature for over a century, with early excavation providing essential insights into human communities from the fifth millennium BC. Four of them are classified as historical monuments of national and universal value, and thus protected by national and international legislation. Despite their recognized significance, recent field surveys reveal a troubling reality: these tells have become „ghost-like monuments”, nearly invisible within the modern landscape: Damaged by erosion, agricultural activities or urban expansion, these sites are raising concerns about their preservation and long-term protection. Our research combines archival analysis with UAV-based 3D mapping, and geophysical survey to evaluate the current condition of these sites. The integration of remote sensing, subsurface prospections, and historical excavation data allows for a comprehensive evaluation of site degradation and contributes to discussions on future research and conservation strategies. The findings highlight the challenges and opportunities for archaeological survey projects in the region, emphasizing the need for interdisciplinary approaches to site documentation and management in rapidly changing landscapes around big cities. Research funded by a grant of the CNCS – UEFISCDI, project number PN-IV-P2-2.1-TE-2023-0876.

889. GEOPHYSICAL PROSPECTION AND ARCHAEOLOGICAL EXCAVATION ON ENCLOSURE ‘A’ FROM ARCHAEOLOGICAL SITE KAZLACHA (BULGARIA)

**Contribution format:** Poster  
**Contribution authors:** Viktoria Petrova (National Archaeological Institute and Museum, Bulgarian Academy of Science) – Todor Valchev (Historical Museum Yambol)

The Kazlacha archaeological site is located in Southeastern Bulgaria, 13 km northwest of Yambol (Bulgaria). In 2011, large-scale geophysical prospection was carried out, which revealed a concentration of five circular ditched enclosures (A, B, C, D, E) covering an area of 6 hectares. On the geomagnetic map, it is clearly visible that the five enclosures have diameters of 60 to 170 meters. They are built one after the other, partially overlapping and consist of one, two or four ditches. They enclose many anomalies of various sizes, shapes, and intensities. Based on the geomagnetic plan, archaeological excavations were carried out in 2015 and 2020-2023. During this first stage of

the study, the main parameters and the chronology of the enclosures were established. Four of them date from the Early Neolithic. The aim of the poster is to present the results of the geophysical prospection and archaeological excavation of the largest and the latest enclosure ‘A’. It is around 170 m in diameter. The ditch is V-shaped with 9.8 m maximal width and 4.9 m depth. It dates to the end of the Middle or beginning of the Late Neolithic in the region, which is supported by two radiocarbon dates, placing the ditch around the middle of the 6th millennium BC. The excavation of the site opens a lot of new scientific topics like: ‘How up it was digged?’ and ‘What it was enclosed – a settlement or a pit-site?’.

990. OVERCOMING CHALLENGES OF DINARIC KARST: ARCHAEOLOGICAL SURVEY STRATEGIES IN BAŠKA, CROATIA

**Contribution format:** Poster  
**Contribution authors:** Filomena Sirovica (Archaeological Museum in Zagreb) – Martin Bažoka (Stratum Ltd.)

The Dinaric karst landscapes occupy about half of Croatia’s territory and present challenging conditions for implementing standard systematic field survey methods due to their geomorphological heterogeneity and intensive human impact. The latter is a result of the general scarcity of soil, which has subjected the terrain to significant modifications through practices such as terracing and clearing land for agriculture. Such intensive parcelling of arable land has resulted in the absence of larger continuous areas with suitable visibility, which are typically necessary for conducting effective field surveys with consistent results. For this reason, it has been noted that the conditions in the Dinaric karst landscape require an adaptation of survey methodology to enable the uniform recording of archaeological remains across the landscape. With this in mind, a systematic field survey of the Baška municipality on the island of Krk, Croatia, was designed. As the island is part of the karst region of the Adriatic archipelago, it has historically been subjected to only limited agricultural parcelling. The island is characterized by the distinct appearance of rocky pasture vegetation of a sub-Mediterranean character, which facilitated extensive livestock farming. Until recently, this represented a significant branch of the island’s economy. However, such economic activities have now almost completely disappeared, and most of the walled plots and terraces, which were once used to artificially level the terrain, are now neglected and overgrown with tall vegetation or covered by forest. Given that these features characterize the landscape in which the field survey was conducted, the authors will demonstrate how the survey methodology was adapted to these challenging conditions and how it ensured the systematic and consistent recording of the distribution and frequency of surface archaeological material, which allows different visualizations and various analyses of the obtained data in a GIS environment.

1279. THE LATE NEOLITHIC VINČA CULTURE FORTIFIED SITES NEAR ALEKSINAC (SOUTHEASTERN SERBIA): STATE OF THE RESEARCH, SURVEYS AND EXCAVATIONS

**Contribution format:** Poster  
**Contribution authors:** Dragan Milanovic (Institute of Archaeology) – Marinko Antonijević – Magdalena Selaković (Faculty of Philosophy, University of Belgrade)

During the implementation of the project of the Institute of Archaeology, the County Museum of Aleksinac and the National Museum Niš, called “Archaeological prospection of the Municipality of Aleksinac (2014–2016)” in the Aleksinac and Niš basins, nine Vinča sites were identified, with smaller excavations conducted at only three of them. Those investigations indicated that the Vinča sites are distributed at relatively regular distances from each other, with the exception of two sites. One is the site of Srednje polje in Bradarac, which is located about 5 km away from the neighboring sites of Crnokalačka bara in Rujište and Drugo Aleksinačko okno in Aleksinac. To understand the complex relationship between these three settlements, analysis of their geographical position, the pedestrian and geophysical surveys, and excavations were undertaken. Only the second mentioned site was excavated and published a long time ago. Geomorphological, topographical and pedological analyses allowed consideration of the importance of their geographical position and land use. The collected surface finds from these sites indicated the existence of sites dating to the late phase of the Vinča culture. The geomagnetic survey in the following years (2017–2020), indicated that encircled Late Vinča culture settlements existed on all three sites. Their sizes varied from 7 to more than 10 ha. The excavations and absolute dating at the site in Bradarac have confirmed the existence of a long-lasting site, encircled by multiple ditches and a wooden palisade surrounding the settlement area of 7 ha. Future research will be focused on excavating smaller trenches inside the settlement area and the fortified part of the settlement at another two sites, to learn more about their chronology, size, use of the space, mutual relationship and significance in the settlement system.



1552. SURVEY AND EXCAVATION CASE STUDY - THE LATE NEOLITHIC VILLAGE AT THE ADŽINE NJIVE-BRAJKOVO 2 SITE

**Contribution format:** Poster  
**Contribution authors:** Miroslav Kocic (University of Kragujevac) – Dragan Milanović (Institute of Archaeology) – Magdalena Selaković – Marinko Antonijević (Faculty of Philosophy, University of Belgrade) – Uroš Nikolić (Ruma County Museum)

The site of Adžine Njive-Brajkovo 2 is located in the Municipality of Ruma, approximately 2 km north of the center of the village of Klenak in northwestern Serbia. Before the extensive protective excavations in 2021-22, geophysical and pedestrian surveys were conducted by the Institute of Archaeology. Excavations took place along a 1.2 km long, 40 m wide section of the highway, divided into three sectors: northern (Sector 1), middle (Sector 2), and southern (Sector 3). In Sector 3, on a slightly elevated area, covering approximately 0.5 ha, the geomagnetic survey indicated the existence of ditches and burnt structures. Subsequent archaeological excavations revealed the remains of several dwelling features from the late stages of the Vinča culture (5000-4300 cal BC) enclosed by deep, wide ditches. In addition, the remains of settlements from the Early Neolithic, older phases of the Vinča culture, Late Eneolithic, La Tene, and Roman periods were discovered. It is estimated that the settlements from the Vinča C-D periods surrounded by ditches covered an area of about 2-2.5 ha. Beside from the finds of the architecture that was first recorded by geophysics and later confirmed by excavations, noteworthy is the discovery of four graves from the Vinča period. Many specialists are currently analyzing the data and the findings, including experts in ceramics, stone, flint, bone, and antler artifacts, anthropologists, archaeozoologists, and archaeobotanists. The results will be published in an upcoming book focused on the Late Vinča settlements in Sector 3. This poster will present some of these finds and the case study of the combination of the survey methodology with later excavation results.

8 GENDERING THE BALKANS-BALKANIZING GENDER: ARCHAEOLOGICAL PERSPECTIVES

**Session theme:** 2. Intertwined Epistemologies: Transcending the Data – Theory Divide  
**Session format:** Regular session  
**Session keywords:** Balkans, gender, archaeology, prehistory, history  
**Session organisers:** Uros Matic (University of Graz) – Bissierka Gaydarska (Durham University) – Nona Palincas (Romanian Academy)

SESSION ABSTRACT

It is a well-known fact that, despite being over four decades old, gender archaeology remains unevenly distributed among European archaeologies. One can hardly think of any region other than the Balkans as often labelled in behind-the-scenes scholarly discussions as lacking gender perspectives on the past. This creates a false dichotomy between Balkan “ungendered” and Western European “gendered” archaeologies. This session will revisit these assumptions. It in fact starts from knowing that in reality Balkan archaeologies are no less gendered than others while also proposing an exploration of what might result from focusing on the Balkans as an area of study.”The Balkans” is a concept originating in geography – the Balkan Peninsula, delimited from continental Europe by the Danube and the Dinaric Mountains. This soon became a geo-political and cultural concept referring to a somewhat wider area – including Romania and Serbia entirely -, now termed Southeast Europe. Nowadays, there are three alphabets and at least ten languages in the region and the degree of integration of archaeological research is rather low. In terms of gender research, over the past two decades, several archaeologists in the Balkans have explicitly addressed gender questions in their studies, but, most likely due to language barriers, many of these works remained unknown outside the small circle of Balkan scholars. This session aims both to “gender” Balkan archaeologies, by providing the first overview of gender research in the region, and to “Balkanize” gender by reclaiming and reinterpreting the concept of “Balkanization” (originally, fragmentation into small contradicting units) as an epistemological process. We see this process as the one that emphasizes fragmented, diverse, and particular approaches to gender rather than a unified, “one-size-fits-all” framework. At the same time, the session will juxtapose these studies from the Balkans with those from other – primarily Western - archaeologies.

CONTRIBUTION ABSTRACTS

1858. IMAGES OF THE GENDERED PAST? CONTRIBUTION OF BULGARIAN PREHISTORIC FIGURINES

**Contribution format:** Oral  
**Contribution authors:** Bissierka Gaydarska (AGE)

Marija Gimbutienė’s legacy in Balkan archaeology is unwavering. In some archaeologists’ views, recent aDNA evidence for a Yamnaya invasion has even strengthened her idea of peaceful matriarchal societies being replaced by war-like patriarchal ones. The other area where her influence remains almost untouched is the persistent perception of prehistoric female figurines as (mother) goddesses, entirely ignoring the heated debates taking place in the Western archaeology since the 1990s. Such continuous interpretations are based on the tacit assumption that figurines with female sexual traits dominate the available corpus of prehistoric figurines overlooking any evidence for unsexed, androgynous, and less so, male images. The few Balkan archaeologists who have broken away from this dogmatic interpretation have relied primarily on single case-study assemblages. But what would a country-wide Neo-Chalcolithic assemblage show? In this paper, the preliminary results of a study of publicly available Neolithic and Chalcolithic figurines from Bulgaria will be presented. The obvious questions by which to interrogate the assemblage would be:– how many female, male and unsexed figurines there are, what does this pattern mean, and is the postulated majority of female figurines really correct?

1038. WOMEN AND GYNOMORPHIC REPRESENTATIONS IN THE LATER BALKAN PREHISTORY (CA. 1600-600 BC): BETWEEN CULTURE-HISTORICAL ARCHAEOLOGY AND AN ARCHAEOLOGY OF DISJUNCTION

**Contribution format:** Oral  
**Contribution authors:** Nona Palincas (Vasile Pârvan Institute of Archaeology, Romanian Academy)

In later Balkan prehistory – i.e., Late Bronze and Early Iron Age (ca. 1600-600 BC) -, the main sources of data for gender archaeological studies are graves and gender-related representations on various artefacts. Both are rather few and unevenly distributed in relation to the vastness of the region and the length of the period, but gender-related representations are more so than graves. This paper concerns gynomorphic representations (i.e., representations of women or of female body parts) and their potential for the analyses of women’s roles. It mainly argues that:

- The wide domination of the culture-historical paradigm in archaeology as well as its unwitting survival in the background of gender studies (see, e.g., the use of the concept of archaeological culture) led to the under-representation of gynomorphic motifs in publications (as these focus on the typical rather than on the rarer representations) and a certain masking of the circulation of gynomorphic motifs across the region of study
- A more useful alternative for gender archaeology would be an approach in terms of the archaeology of disjunction (see, e.g., Wesley D. Stoner and Christopher A. Pool, in Current Anthropology 2015, based on Arjun Appadurai’s anthropological work), primarily because such an approach considers the multiscalar interactions between groups and, implicitly, the interplay between continuities and discontinuities of cultural traits in space and time. As a consequence, this would shed a different light on how various parts of this rather vast region were both connected and divergent over the lengthy period of time considered here.

1530. SPEAKING ABOUT THE UNSPOKEN: GENDER AND SEX IN SLOVENIAN ROMAN ARCHAEOLOGY

**Contribution format:** Oral  
**Contribution authors:** Kaja Stemberger Flegar (PJP d.o.o.)

As I was researching topics that fall under the umbrella of identity studies in Slovenian archaeology of the Roman period, I soon came to realise that a great deal of the core terminology is rarely defined, and almost never discussed. The most commonly examined aspects are ethnic identity/cultural affiliation, social status, age, and sex/gender. This list already hints at problems with the terminology – Slovenian “spol” covers both sex and gender, for example. While there are more precise and more verbose options such as “biološki spol” and “družbeni spol”, they are for the most part not explicitly used in the context of (Roman) archaeology. With the great increase in osteological studies, we are now faced with two different tracks of information, especially from the funerary setting: biological data obtained from bones, and social data obtained from grave goods, which were traditionally used for the determination of the sex/gender of the deceased. While the two can coincide, this is not necessarily the case. Their distinction calls for different methodological approaches, but at the same time, it opens possibilities for comparing the two tracks from which the information was obtained. The paper thus aims to present the state of research and the existing terminology, with suggestions on how it could be improved in light of scientific advancements. Another aspect is methodological, dwelling on how to bring legacy data to the common denominator and how to use it in further studies. Last but not least, I will explore the meta-issue of who has been explicitly studying sex and gender.

982. EXPLORING THE ROLE OF WOMEN ON THE ROMAN LIMES IN SERBIA – INSIGHTS FROM SMALL FINDS

**Contribution format:** Oral  
**Contribution authors:** Milica Marjanovic (Institute of Archaeology Belgrade)

Roman limes is traditionally perceived as a battlefield, a predominantly male domain situated at the periphery



of the civilized world. In last few decades, numerous scholars made considerable efforts to underscore the fact that the communities of limes fortifications also encompassed civilians who interacted with the Roman army in various capacities. Among these civilians were undoubtedly many women, who had diverse tasks and occupations within forts. Nonetheless, presence and roles of women in these contexts have not been sufficiently explored or acknowledged across all regions of the Roman limes. This paper examines several auxiliary forts located along the Iron Gate Gorge in Serbia, focusing on the distribution patterns of small finds that may be linked to women. These fortifications yielded a significant number of potentially female finds, including parts of typically female adornments, but also small finds that were considered mundus muliebris, or were symbols of female virtue in Roman world. Distribution patterns of these finds reveal their concentration in various contexts – principia, horreum, military barracks, areas between buildings, etc. Obtained data suggest not only that women were allowed and present inside these forts, but they were also actively engaged in commercial and manufacturing activities, with close family or business connections with the army. The assemblage of finds, along with the diverse architectural layouts of the forts, indicates that not all of them had exclusively military purpose, thereby challenging the conventional interpretation of the Roman limes fortifications.

1789. GENDER, MAGIC, AND HEALTH: JET ARTEFACTS FROM VIMINACIUM

**Contribution format:** Oral  
**Contribution authors:** Ilija Dankovic (Institute of Archaeology, Belgrade)

Since the beginning of the 3rd century, a new phenomenon arose across the Roman Empire: the emerging industry of jet object manufacture. Studies on jet artefacts from the western Roman provinces have shown that these objects are almost exclusively associated with the “women’s domain” or found in graves of biologically female individuals. While occasional exceptions exist, scholars have struggled to explain the strong connection between jet and women. One possible explanation lies in ancient medicinal texts, where authors like Pliny the Elder describe jet’s therapeutic properties, particularly in treating uterine conditions. Although these texts do not mention wearing jet amulets or jewellery, the rarity and high value of jet suggest that crafting durable objects may have been a way to preserve its protective and healing properties over time. At the Roman city of Viminacium (Serbia), jet artefacts have been found in 52 inhumation burials. The majority of these objects are jewellery, primarily discovered in the graves of adolescent girls and adult women. However, the presence of jet amulets—including one in a child’s grave—suggests that jet may have had broader magical and apotropaic significance beyond its association with women’s reproductive health. Additionally, jet beads found alongside amber necklaces hint at a potential symbolic or functional connection between these materials, both of which were believed to possess electrostatic properties and were valued for their protective qualities. This paper builds upon previous research of 32 burials by expanding the study to include 20 newly discovered graves from Viminacium. By integrating archaeological, anthropological, and textual evidence, this research aims to further explore the gendered significance of jet in Roman funerary practices and its role in concepts of health, magic, and protection in this part of the Balkans, and the broader Roman world.

2425. GENDERING ARCHAEOLOGY IN MONTENEGRO AND ITS MUSEUMS

**Contribution format:** Oral  
**Contribution authors:** Dušan Medin (University of Donja Gorica, Faculty for Culture and Tourism, Podgorica, Montenegro)

The question of gender in archaeology in Montenegro is one of many topics within a broad spectrum of phenomena that the local archaeological community – particularly museum curators archaeologists – has largely not explored in detail. If it has been addressed, it has mostly been approached in a very traditional manner, aligned with unwritten and thus unofficial but still strongly prevailing patriarchal norms that many adhere to in this country, which inevitably extends to the archaeological profession as well. In this presentation the author aims to provide preliminary answers to how, when, and in what ways archaeologists in Montenegro have so far linked questions of archaeology and gender (almost always considered and biological category of sex). Also, it will be paid special attention to how different genders are represented – either deliberately or unconsciously – in archaeological exhibitions in contemporary Montenegrin museums, including the archaeological material in permanent displays, temporary exhibitions, accompanying catalogs, legends, museum guides, etc. At the same time, it is evident that historical, artistic, and especially ethnological exhibitions (typically featuring material from the early modern period and parts of the 20th century) place considerable emphasis on how “male” and “female” objects, spaces, places, and roles are presented. Therefore, in this presentation, likely for one of the first times in Montenegrin practice, it will be critically examined the representation of gender in the archaeological museum context and provide an initial insight into a topic that, according to our knowledge, has been significantly avoided by colleagues both in the past and today. Yet, it represents a potent framework for reflection and action toward building a more equitable society in the present and future of this small Balkan country.

9 IT IS WHAT YOU MAKE OF IT: IMPERIAL AND PRIVATE IMAGES AT THE BORDERS OF THE EMPIRE

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** Imperial images, Zeitgesicht, Local identity, Agency, Roman provinces, Reception  
**Session organisers:** Francesca Bologna (University of Verona) – Francesca Lam-March (King’s College London) – Raffaella Bucolo (University of Verona) – Hristina Ivanova-Anaplioti (University of Verona | University of Sofia)

SESSION ABSTRACT

This panel proposes to explore the intersection between making, viewing, and message in provincial portraiture between the 1st and 3rd century CE. The idea arises from the ERC-funded project RESP – the Roman Emperor Seen from the Provinces, investigating the reception of imperial images in the provinces. We aim to bring together papers analysing the public image of the members of the imperial family – both males and females – as well as of the local elite as perceived and understood by provincial audiences. This approach will, in turn, highlight the reception and manipulation of properly ‘Roman’ models by different recipients: the local population observing these images in public spaces, the patrons commissioning them, and the makers involved in their creation. Ultimately, this investigation will bring to light both the local reception of imperial propaganda and how the civic elite shaped their public personas by declining the Roman message in light of local traditions. Among the themes to be investigated in this panel are: 1) Local identities within a world-empire; 2) Representations of the emperor and members of his family outside of Italy; 3) Imperial propaganda expressed in visual media in the provinces; 4) The role played by the artisans producing these representations (in terms of familiarity with local and/or Roman iconography); 5) Local variations in the self-representations of private individuals, especially members of the civic elite; 6) Zeitgesicht, potential and pitfalls. We invite expressions of interest from scholars specialising in different media or any form of visual culture (sculpture, numismatic materials, metalwork etc). We are particularly interested in papers dealing with local ethnic traditions and/or the representation and agency of female figures, both private individuals and members of the imperial family.

CONTRIBUTION ABSTRACTS

73. HOW CAN THE PRODUCTION PROCESS OF PORTRAITS OF AUGUSTUS IN HISPANIA CHANGE OUR PERCEPTIONS OF PROVINCIAL REACTIONS TO THE EMPEROR

**Contribution format:** Oral  
**Contribution authors:** Francesca Lam-March (King’s College London)

This paper seeks to reassess the sculpted portraits of Augustus in Hispania to decipher what they can tell us about provincial reactions to the newly instated emperor. By building on the excellent identification methodology used by Boschung in his 1993 work Die Bildnisse des Augustus, this paper will go beyond questions of identification and typology to look at the attributes of the commissioning and sculpting portraits. It has long been established that sculpted portraits of Augustus followed a prototype for placement of his hair locks. Yet, the study of portraiture remains confined to this typology, labelling portraits close to the prototype as ‘strong’, and the others as ‘weak’. These semantically charged characterizations result in positive and negative assumptions about the sculptors’ skills and knowledge of the emperor. Boschung labels almost every single portrait of Augustus in Hispania as ‘weak’. While his typology works for identification, this overlooks more interesting questions that can be answered by considering other factors in conjunction with this approach. These include thinking about the materials used, the level of finish, the skills demonstrated by the carvers, and the potential cost of the portrait. Even if a head did not look exactly like the Prima Porta Augustus, it might still have been an incredibly high-valued piece. By considering these factors, we can gain a deeper understanding of not only how the provinces were responding and honoring the emperor through portraiture, but also which aspects of the imperial portrait production process were prioritized by the ancient commissioner and sculptor. This in turn leads to a more nuanced interpretation than one resting solely on the strong/weak dichotomy. As modern scholarly interpretation of imperial portraits does not necessarily correspond to ancient viewers’ experiences.

2229. PHARAOH, AUTOKRATOR, PATER PATRIAE – THE ROMAN EMPEROR AND HIS FAMILY AS SHOWN IN THE PROVINCE AEGYPTUS

**Contribution format:** Oral  
**Contribution authors:** Julienne Schrauder (German Archaeological Institute, Romano-Germanic Commission | University of Heidelberg, Institute of Egyptology)



The inclusion of Egypt into the Roman Empire meant that the Roman Emperors had to show themselves as legitimate rulers of Egypt and their families as guarantors of continuity in a multicultural setting. The imagery of pharaonic times and Hellenistic traits adapted during the reign of the Ptolemies needed to be combined with the Roman self-image – and distributed to the right audiences. This was achieved by choosing the right (pictorial) formulas for each group and type of legitimacy strategy. Two media will be presented and compared here: The Emperor and his family as shown in monumental Egyptian architecture (focusing on temples) and as depicted on the coins from the Alexandrian mint. The latter is especially of interest since until Diocletian times, the coinage of Egypt was separate from the rest of the imperial coinage, meaning it was addressed exclusively to the populace – and to a lesser degree also visitors – of Egypt.

**404. LOCAL REFLECTIONS ON DEVOTION TO ROME: INSIGHTS OF SOME PRIVATE PORTRAITS FROM THE “EMPEROR-LOVING” CITY NYSA AD MAEANDRUM**

**Contribution format:** Oral  
**Contribution authors:** Hava Keskin (Akdeniz University)

After a turbulent first century BC in Anatolia, the Nysaeans eagerly welcomed the Pax Aeterna inaugurated by Augustus. The evidence of the first century AD in the city is limited, and the existence of monumental buildings is known by indirect sources, mainly from Strabo’s accounts, who was educated in Nysa in his youth. Early imperial honouring is attested by an inscribed statue base which belongs to a bronze statue, that is lost today. A private portrait influenced by the Julio-Claudian images, sheds light on Nysa’s history during that period, reflecting public honouring in the city. Besides, numismatic data indicates the Nysaeans’ gratitude for Tiberius and provides insight into the city’s social context during the Julio-Claudian period. In the following century the sculptural programme of one of the city’s prominent buildings, the so-called gerontikon/odeion is striking. The construction of the building was financed by Pythodoros, a wealthy Nysaeon following his mother’s will. Inside the building was created an honorific courtyard adorned with statues of the imperial family of the emperor Antoninus Pius and statues of Pythodoros’s family members, aiming to manifest how loyal this local family was to the imperial family more precisely to the Roman empire. Pythodoros is also notable as a descendant of Khairemon, who made a significant donation of wheat to the Romans during the Mithridatic Wars. The third century in Nysa is documented primarily through epigraphic evidence. Despite the challenges and upheavals faced by the empire, the city maintained its loyalty to the emperors, earning recognition from the Ephesians as an “emperor-loving city.” A group of private portraits indicates that Nysa closely followed imperial portraiture throughout this period, reflecting the Nysaeans’ enduring commitment to their place within the Roman sphere.

**26. THE STYLE OF MEMORY AND COMMUNITY IN THE FEMALE FUNERARY PORTRAITS OF PALMYRA**

**Contribution format:** Oral  
**Contribution authors:** Amy Rasmussen (Independent Scholar)

This paper explores the role of style in the collective memory and community identities of the ancient city of Palmyra, in present-day Tadmor, Syria. The city’s Roman Imperial period offers a rich body of evidence in the form of its funerary portraiture, from which I focus on the commemoration of Palmyrene women. In addition to being the largest corpus of portraiture from the imperial period outside the Italian peninsula, the Palmyrene corpus stands out stylistically, departing from the portraits of the capital. First, I review prior scholarship, which has greatly focused on the lack of realism in Palmyrene portraits or the inscriptions accompanying the portraits. I argue that archaeology needs to shift from a connoisseurship approach that prioritizes the name and biography of the woman depicted, to one that still utilizes the tools of connoisseurship but considers the fundamental role of practice in funerary representation. Drawing upon Bourdieu’s theory of practice, my approach demonstrates the central role of style as a memory-making strategy. Thus, memory-making has a material component in the portraits, which resides in the ongoing practices of style. Then, I introduce a case study, a female funerary portrait from Palmyra, so to explore the complex relationship between style and geography. Traditional connoisseurship often collapses style, workshop, and geography, but the tools of connoisseurship allow me to refute a singular and spatially bound understanding of the portrait and instead suggest a link between style and the collective memory of Palmyra. This approach enhances the role of shared memory—both conscious and unconscious—so to recraft understandings of womanhood and community identity in Palmyra, and its balance between a local and Roman cultural heritage.

**1298. WRITING AND READING PARAPHERNALIA IN ATHENIAN FUNERARY STELAE FROM THE IMPERIAL AGE: ICONOGRAPHIC MODELS AND PERSONAL AMBITIONS IN WOMEN SELF-PRESENTATION**

**Contribution format:** Oral  
**Contribution authors:** Ada Caruso (Sapienza Unversy of Rome)

My paper focuses on writing/reading women on funerary stelae from Athens during the Roman Empire. Testimonia

date back to the 1st and 2nd centuries AD, when Athens was at the core of a cultural Renaissance. Inscriptions and literary testimonia from this period attest high-born Athenian women as philosophers or literate. As for grave-stones, five marble stelae represent wealthy women with an object that evokes ability to write and read, whereas no similar documents have been found in the Attic countryside. This contribution proposes to examine each case based on the iconography of each figure, her attitude (some women are sitting on a seat, others are standing), and the typology of writing/reading tool (the prevailing type, the way it is held, etc.). The monument will be also considered, as well as the related inscriptions, when present, and prosopography. My aim is twofold: one strictly pertains to gender aspects: to contribute to the reconstruction of the intellectual dimension of ancient women from a peculiar archaeological perspective, never considered before; the other aim pertains instead to visual culture: to detect any possible iconographic models in the representations of women (taken from e.g. the imperial family, and/or literate women from the rest of the Empire), and their reception in Athens. Finally, I also aim at pointing out local identities in literate women self-presentation.

**1226. NEW DATA ON ROMAN FEMALE PORTRAITURE IN AQUILEIA**

**Contribution format:** Oral  
**Contribution authors:** Luca Scalco (University of Padua)

Roman portraiture in Venetia et Histria has been the subject of numerous studies in the past, with a focus on stylistic, typological, social and dating aspects. In recent years, however, there has been a decline in scholarly attention, yet new acquisitions and research topics have emerged. The communication aims to contribute to this trend by presenting an almost unknown portrait of a woman from Aquileia. The portrait belongs to a fragment of a stela with portraits, as its technical and iconographical features point out. Alongside this descriptive analysis, the sculpture will be compared to the dataset of already published private portraits from the ancient city, that have been extensively reconsidered and further analyzed for this study. The results of the analysis offer valuable insights that can be transformed into a useful tool for the study of portraiture in the north Adriatic city, particularly in relation to issues concerning artisans’ practices, dating, and typological (and potentially geographical) attribution.

**598. 3D ANALYSIS OF ROMAN IMPERIAL PORTRAITS. QUANTITATIVE COMPARISON OF PHYSIOGNOMIC TRAITS FOR TYPOLOGICAL IDENTIFICATION**

**Contribution format:** Oral  
**Contribution authors:** Daniele Bursich (Università degli Studi di Verona)

The physiognomic traits that determined the recognition of an individual in ancient times were linked to specific physical characteristics. As for the emperor, the distinctive features that identified him included facial and appearance traits, which made him recognizable and symbolic of his authority. The approach based on the analysis of recurring details has proven particularly useful for archaeological research. These traits were emphasized or adapted to the media used to spread the imperial effigy in the Empire, such as coins, bas-reliefs and sculptures. However, the standardization of the image of the emperor imposed by Rome imposed fixed points that never changed, and which constituted the essential features immediately recognizable by anyone. A distinctive aspect to identify an emperor is the hairstyle, which was reproduced with care, and which sometimes allows us to define types of portraits only based on the number and orientation of the locks of hair on the face. On the contrary, the identification of an emperor based exclusively on the recognition of physiognomic traits is much more complex because often the conformation of the facial features does not follow a recurring standard but undergoes alterations and modifications depending on the provincial culture to which it is addressed. This latter type of analysis usually occurs in an autoptic or biometric manner. One of the aims of the IRIMES and RESP projects is the analysis of facial features using 3D models obtained from 3D scans. Based on published data, a new and specific workflow was developed that allowed obtaining quantitative data and percentages of overlap, facilitating a precise comparison, never attempted before. The methodology used can help to highlight the differences between provincial portraiture influenced by local style, such as the Trajan portraits from Salona and Piraeus, and metropolitan ones.

**293. THE SPREAD OF IMPERIAL PORTRAIT MODELS AMONG THE CIVIC ELITE IN THE PROVINCES. NERVA’S ZEITGESICHT?**

**Contribution format:** Poster  
**Contribution authors:** Raffaella Bucolo (University of Verona)

Emperor Nerva’s reign constituted a critical historical and political transition period. After the violent end of the last of the Flavians, Domitian, Rome went from a dynastic and hereditary government to the adoptive system of the 2nd century AD. Although Nerva’s reign was brief, it was significant that his sudden ascension to the imperial throne created an urgent need for images, which were immediately disseminated through coins and portraits. Due to the memory sanctions against Domitian, the majority of Nerva’s portraits are re-carved, the most comprehensive



surviving examples of his image are found in numismatic portraits, which played a crucial role in shaping public perception during his reign. Despite the brevity of his time in power, the quantity of documented portraits and statue bases attributed to Nerva is substantial, highlighting the urgency of his image’s propagation. In this paper, I intend to present several portraits of private individuals that echo Nerva’s distinctive appearance, illustrating the rapid spread of the emperor’s model. Additionally, I will focus on a specific case study of a marble portrait from Provence (France), likely found in the villa of Baumelles – situated near the ancient centre of Tauroentum - and currently held in the Museum of Saint-Germain-en-Laye. this portrait recently underwent restoration and was briefly referenced as a representation of Nerva in an article from the 1980s. However, it has yet to be thoroughly examined, and its unique characteristics and the context of its discovery warrant further investigation. In my analysis, I aim to delve into the technical aspects as well as the portrait’s stylistic features to determine whether this head can genuinely be classified as a provincial example of Emperor Nerva’s Zeitgesicht, contributing to our understanding of his image and influence beyond Rome.

**450. THE LAST LEGACY OF SEPTIMIUS SEVERUS IN PORTRAITURE AND ITS RECEPTION IN PROVINCIAL COINAGE**

**Contribution format:** Poster  
**Contribution authors:** Hristina Ivanova-Anaplioti (University of Verona)

With the rise of Septimius Severus to the throne in 193 AD an era ended and the period of the affirmation of a new dynasty started. These policies were expressed in various actions to prove legitimacy and shape the image of the new ruling family. Beginning with the emperor himself one of the most intrusive measures taken is in the imagery – being in the portraiture of the royal members or connected to local mythologies. Iconographic and stylistic adjustments are consistently traceable in numismatic material. This gives us a good scale to compare with other media in stone or other materials. The imperial portraiture of Septimius Severus has been a long-debated subject among scholars. The typologies developed during the last two centuries differ in parameters, partition, allocation, and interpretation. Even so, the known material sufficed for thorough studies of sculpture and coinage. This allows further discussion of the correlation between the two media and discloses how prototypes were imposed on them in Rome and the provinces. There are discrepancies between the consistency, quantity, and distribution of the portraits - first between metropolitan and provincial media and second between sculpture and coinage. However, several mints show the development of the basic typology’s upgrading from the first to the last type. The latter was the ultimate intervention by the emperor to mold his iconographical legacy. The reason, why only some mints go through the entire process and if there is coherence between them is not clear. Following this trend from Marcianopolis until Petra, these issues will be analyzed in this poster.

**2458. TRAJAN WHO? REPRESENTING ROME IN THE TROPAEAUM TRAIANI AT ADAMKLISSI**

**Contribution format:** Poster  
**Contribution authors:** Elizabeth Wolfram Thill (IU-Indianapolis)

In 2009, the National Bank of Romania issued a silver 10 lei coin to commemorate the 1900th anniversary of the Trajanic Tropaeaum monument at Adamklissi. The coin obverse featured stunningly detailed illustrations of three ancient metopes, each depicting Roman soldiers battling Dacian enemies. The coin’s reverse showed the reconstructed monument, set behind a prominent bust of Trajan himself. This modern choice of imagery is interesting, given that little evidence of any imperial portraiture has been recovered from the ancient site. Of the 49 extant Tropaeum metopes (out of an original 54), only one has been identified as possibly depicting the emperor, and that in a stylized pose probably copied from a coin reverse. While this does not preclude the emperor’s appearance in other forms, this limited imperial representation can be set against the metopes’ presentation of dozens of Roman soldiers and barbarian opponents, including at least 3 women, 3 children, several wagons, and even 5 sheep. That sheep should be more numerous than imperial portraits is even more striking when compared to the Tropaeaum’s contemporary monument in Rome, the Column of Trajan. Both monuments were set up between 108-113 CE and used relief sculpture as a medium to illustrate (in highly ideological form) the same wars in Dacia between 101-107 CE. Yet the urban monument includes some 60 representations of the emperor, who is shown overseeing every aspect of the campaign. This paper will argue that this discrepancy is evidence of a disconnect, between the focus of Roman elites—and modern scholarship—on the personal role of the emperor, and the way that Roman intervention was experienced along the frontier. For the conquered Adamklissi residents, it mattered little who set the policy of territorial expansion in faraway Rome. What mattered was who wielded the swords threatening their children.

**12 PLANTS, HUMANS AND LAND USE IN PREHISTORY AND EARLY HISTORY OF SOUTHEASTERN EUROPE**

**Session theme:** 8. Along and across the Danube!  
**Session format:** Regular session  
**Session keywords:** southeastern Europe, prehistory-early history, human-plant interaction, environment, land use  
**Session organisers:** Dragana Filipovic (Max Planck Institute of Geoanthropology) – Djurdja Obradović (Institute of Archaeology, Belgrade) – Soultana Valamoti (Aristotle University of Thessaloniki)

**SESSION ABSTRACT**

Although research on the history and nature of human-plant interactions and land use in southeastern Europe has its roots in archaeological investigations of the late-19th century in the then parts of Austro-Hungarian Empire, much of the specialist knowledge was produced in the last several decades, with archaeo-science methods having been used only recently and on a small scale. Modern research in the region has benefitted from numerous methodologically rigorous systematic and development-led excavations, rediscoveries of samples and materials long stored in museum depots, accelerated tempo and increased precision of analyses, growing range of methods and techniques employed, timely exchange and dissemination of results and an overall increase of scholarly and public interest in, and relevance of, this aspect of the past. Major international projects have been instrumental in extracting key knowledge from archaeological layers. Although this knowledge is, geographically and chronologically, still rather uneven, it has become possible to consider and include this part of the continent in broader archaeological discourses and debates. Now is a good time to look at the progress of research and the type of knowledge generated for the region so far, and from this think forward and plan for a future. Southeastern Europe has always been a cultural and environmental crossroads between Europe and the rest of Eurasia. This session invites scholars to present and promote their findings and insights on the deep and long history of interactions and co-evolution of people and plants in this region. We also encourage reflections on constraints and issues faced in the research and invite proposals for solutions and future directions. We call for papers from scholars of archaeobotany, archaeological science (in its broadest sense), ethnoarchaeology, palaeoecology, experimental archaeology, palaeodemography, ancient environmental pollution, land-cover and land-use modelling.

**CONTRIBUTION ABSTRACTS**

**1248. EARLY FARMERS AT SCHELA CLADOVEI: AN ARCHAEOBOTANICAL PERSPECTIVE**

**Contribution format:** Oral  
**Contribution authors:** Djurdja Obradovic (Institute of Archaeology, Belgrade) – Adina Boroneant – Mihaela Golea (Institute of Archaeology “Vasile Parvan”) – Clive Bonsall (The University of Edinburgh)

Archaeobotanical sampling has been limited to just two sites that survived dam construction along the Iron Gates section of the Danube. Minimal plant data were collected during salvage excavations conducted during the construction period of the dams (e.g., pollen from archaeological layers and coprolites). To compensate for this ‘lost’ evidence, alternative methodologies have been implemented, including stable isotope studies of human remains and the analysis of starch and phytoliths from dental calculus and grinding stones. Schela Cladovei, located on the Romanian bank of the Danube, is one of only two sites that escaped the flooding caused by dam construction. Consequently, it offers a unique opportunity to study dietary changes during the important Mesolithic–Neolithic transition in the Iron Gates but also, given the uniqueness of the evidence, in the wider region. Systematic sampling and flotation of pit features from excavations conducted between 2008 and 2022 have yielded substantial evidence for cultivated plant use in the Early Neolithic settlement. This contrasts with Vlasac, where plant remains were primarily recovered from grave contexts, and mostly from the Late Mesolithic. The archaeobotanical archive from Schela Cladovei is not only crucial for understanding economic and dietary changes across the Mesolithic–Neolithic transition; it also provides a rare opportunity to compare the use of plants in a domestic, everyday context with that in a funerary, symbolic context within the as yet unmatched archaeological treasure trove that is the Iron Gates.

**1781. BRIDGING THE OLD WITH THE NEW: RECENT ARCHAEOBOTANICAL RESEARCH OF THE 5TH MILLENNIUM BC KGKVI CULTURE**

**Contribution format:** Oral  
**Contribution authors:** Mihaela Golea („Vasile Pârvan” Institute of Archaeology, Romanian Academy)

The 5th millennium BC in southeastern Romania is characterised by the Kodjadermen-Gumelnița-Karanovo VI



(KGKVI) and its predecessor, the Boian-Marița material cultures. The major features of this period are complex settlements systems, booming animal and plant husbandry and a large interconnectivity among the communities along the Danube Valley and beyond. Although the KGKVI, and the Cucuteni-Trypillia are the best represented cultures in what Romanian archaeobotanical studies are concerned, main attention was paid in the past only on structured agglomerations of grain and seed remains. In this study, we share new data contributing to a better understanding of a series of aspects such as culinary preferences and plant use as construction material. Most of this new data emerged from the re-examination of the finds from the old excavations and some recent unpublished information. This allowed for a re-appraisal of the evolution and development of crop preferences during the 5th millennium BC in the region of interest.

**1950. INTERDISCIPLINARY APPROACH TO THE STUDY OF SUBSISTENCE AND PLANT PROCESSING AT THE EARLY CHALCOLITHIC OPEN-AIR SITE NEAR CHIRPAN, SOUTHERN BULGARIA**

**Contribution format:** Oral  
**Contribution authors:** Hanna Aleksandrova – Nataliya Ivanova – Tzvetana Popova – Petar Leshtakov (National Archaeological Institute with Museum at the Bulgarian Academy of Sciences) – Yordanka Ilieva (Department of Archaeology, Sofia University “St. Kliment Ohridski”)

The Early Chalcolithic open-air site is located near the modern town of Chirpan, Southern Bulgaria. Rescue excavations, carried out from 2020 to 2022, revealed that the prehistoric settlement had a relatively short-term occupation (4800 – 4550 BC). It was built according to a predefined plan – with orthogonal street network that led to a central courtyard, surrounded by buildings orientated to the four cardinal points. The inner space was enclosed by ditches. This presentation focuses on five of the fourteen studied dwellings, highlighting their interior planning and food preparation areas, equipped with an oven and fixed grinding installations. By applying contextual and interdisciplinary (macro- and microbotanical) analyses of the grinding stones and food preparation areas, we were able to reconstruct different activities related to plant use, storage and cereal processing. The archaeobotanical analysis revealed a rich assemblage composed of different cereal crops and legumes, fruits, nuts, processed food, and wood charcoal. In addition, the recovered microremains (phytoliths and starch) from the active surfaces of six grinding stones serve as direct evidence for the use of the tools in plant processing, including wheat, panicoid grasses and, in one case, legumes. Furthermore, SEM/EDS analysis also provided intriguing insights into taphonomical processes and possible food preparation techniques. The obtained data will be presented and placed in a regional context.

**429. CHARRED ORGANIC LUMPS FROM SARMIZEGETUSA REGIA (ROMANIA). INSIGHTS INTO PLANT USE AND LAND MANAGEMENT IN DACIAN SOCIETY**

**Contribution format:** Oral  
**Contribution authors:** Ciuta Beatrice (1 Decembrie 1918 Univeristy from Alba Iulia)

This study examines charred organic lumps from the Dacian archaeological site of Sarmizegetusa Regia (100 BC – 100 AD) (Transylvania region, Romania) focusing on their composition, formation processes, and potential role in ancient food practices and land use. Using archaeobotanical and archaeometry techniques, including 3D digital microscopy (Keyence), Scanning Electron Microscopy (SEM-EDS), and X-ray Fluorescence Spectroscopy (XRF), we analysed microstructures, elemental composition, and preservation conditions, distinguishing food remains from other carbonized organic materials. These analyses provided detailed insights into the nature of the remains and their possible connections to food preparation, fuel residues, or ritual activities. A key aspect of this research is the investigation of the environmental and cultural contexts in which these remains were formed, exploring their implications for human-plant interactions, land management, and environmental adaptation in Iron Age south-eastern Europe. Our findings contribute to the archaeology of food and environmental archaeology, offering new insights into Dacian subsistence strategies, resource management, settlement activities, and land use practices. By integrating multiple scientific methods, we aim to provide a clearer understanding of daily life, food consumption, and the broader relationship between human societies and their natural surroundings.

**233. EATEN AT THE TREE. ARCHAEOBOTANICAL RECORDS OF APPLES AND PEARS FROM THE CENTRAL BALKANS IN A EURASIAN CONTEXT**

**Contribution format:** Oral  
**Contribution authors:** Dragana Filipovic – Kseniia Boxleitner (Max Planck Institute of Geoanthropology, Jena) – Djurdja Obradovic (Institute of Archaeology, Belgrade) – Robert Spengler (Max Planck Institute of Geoanthropology, Jena)

The list of fleshy fruit types recorded at archaeological sites in the central Balkans grows with every new archaeobotanical analysis; however, the quantities of the remains, chiefly preserved through charring, are in most cases very modest. This is because many of these fruits were likely eaten at the tree or the bush, but also because they

were less likely to end up in fire since they were not parched or ground for eating and some were consumed whole (flesh, seeds and all), either fresh, or dried and then boiled. Earliest available finds of fruits in the central Balkans include hard-seeded species, like Cornelian cherry and elderberry, dating from the regional Late Mesolithic (early 7th millennium BCE). Remains of apple and pear appear later in the archaeobotanical archives, from the later stage of the Early Neolithic (early-mid 6th millennium BCE) onwards, with the youngest finds so far noted in Roman and Early Byzantine layers. Such long histories of apples and pears indicate their persistent value to people, and the many uses known in ethnographic and modern contexts give an idea of their potential versatile roles in the past. This paper reviews the evidence of apple and pear in the central Balkans and places it in a broader temporal and geographical context using the data compiled within the ERC-project “Fruits of Eurasia: Domestication and Dispersal (FEDD)”. In this, it emphasises the problems in distinguishing between the finds of apple and pear on morphological grounds. Further, it discusses the apparent parallel use of ‘wild’ and ‘cultivated’ forms of pear in the Late Roman period and the difficulties in determining wild vs. managed status of archaeological pears. It presents some ideas as to how to address the identification issues.

**2313. GRAZING THROUGH TIME: HUMAN-HERBIVORE DYNAMICS IN WOODLAND ECOSYSTEMS DURING THE PREHISTORY**

**Contribution format:** Oral  
**Contribution authors:** Jan Kolar (Institute of Archaeology, Czech Academy of Sciences, Prague) – Jelena Bulatović – Natalia Riabogina (Gothenburg University)

Woodlands were an important part of European landscapes for the last 12,000 years. Woodlands provided and provide many ecosystem and cultural services, and historically were important resources at critical times. Palaeoecology, which most often studies woodland in the past, has made significant progress in the creation of vegetation models, but the investigation of the human role in past woodland ecosystems still fails to integrate archaeological data in their full complexity. This is exactly what this paper will address. In addition to demographic models, which are relatively often compared to vegetation models, this paper will focus on the innovative use of big data from archaeozoology and biomolecular data and will discuss their potential for transdisciplinary research. This paper will present first results and future perspectives of newly started project combining data on plants, large domestic and wild herbivores, and humans, in a unique multi-species perspective. The project will focus on the study of these multispecies relationships along the continental route of spread of farming and animal husbandry, analytically connecting therefore south-eastern and central Europe.

**240. OVERVIEW OF ARCHAEOLOGICAL FINDS OF WOOD CHARCOAL IN SERBIA: TIMBERS, FIRES AND PYRES**

**Contribution format:** Poster  
**Contribution authors:** Dragana Filipovic (Max Planck Institute of Geoanthropology, Jena)

Large parts of present-day Serbia are thought to have been covered in dense forests almost until modern times. Extensive areas under natural woods can be found nowadays in the hills and mountains in its central and southern parts. These forests developed during the early and middle Holocene; much of this period in the Balkans was characterised by major cultural, technological and demographic developments. From around 6000 BCE, late prehistory, the region witnessed the transition to, and full establishment of agricultural lifestyles, including the rise and fall of large, enclosed pre-urban settlements. This was followed by millennia of short-lived settlements and pastoralism-dominated lifeways, succeeded by a period of proliferation of elaborate fortified centres with centrally organised food provision and storage, alongside household-based production. The first half of the 1st millennium CE, the Roman Period in the region, was a time of growing demand for resources and local production needed to supply newly founded urban and military centres. All these developments involved cutting of forests for timber and fuel or burning of forests to clear land for food production. Little research has been done on the direct evidence of wood exploitation, i.e. wood remains, preserved by charring and frequently found in archaeological layers and anthracological archives in Serbia. As a consequence, information on the use of wood through time and across space in the past is rather limited here, as is the knowledge on the composition and extent of woodland vegetation. In hope for a better future of anthracological investigations in Serbia, this poster presents the currently available data and their sources, and summarises the observations that have or can be made so far on past woodland exploitation in this territory.



1335. LIVING BY THE RIVER: PLANT USE AND VEGETATION IN THE LATE NEOLITHIC ALONG THE SAVA RIVER IN SERBIA

**Contribution format:** Poster  
**Contribution authors:** Djurdja Obradovic (Institute of Archaeology, Belgrade) – Dragana Filipović (Max Planck Institute of Geoanthropology, Jena) – Dragan Milanović (Institute of Archaeology, Belgrade)

The sites of Gomolava and Klenak are situated on the left bank of the Sava River, in the southern Pannonian Plain, and were intensively occupied from the Neolithic through to Roman times. Recent rescue excavations at Klenak have uncovered remnants of a Late Neolithic settlement surrounded by multiple ditches, as well as the remains of Late Neolithic burials. Here, the ongoing archaeobotanical sampling and analysis provide a unique opportunity to study plant use and deposition in sacred and domestic contexts from the same period (5300-4500 BCE). At Gomolava, archaeobotanical investigations conducted in the 1970s provided a detailed view on plant production and surrounding vegetation in the different phases of occupation, including the Late Neolithic settlement. The two sites are located c. 10 km apart and in the same, predominantly flat landscape. Given their proximity and coeval Late Neolithic occupations, together they offer important insights into plant use, crop choices and cultivation practices within a specific environment – the Sava plain, renowned for its high agricultural potential but prone to flash floods. This poster presents first archaeobotanical results from the site of Klenak and compares them with the data from Gomolava.

2001. IMPACT OF FIRE AND THERMAL ALTERATION ON PHYTOLITH PRESERVATION AT THE PROTOPALATIAL SETTLEMENT OF AGRIANA, CRETE, GREECE: INSIGHTS FROM OLM

**Contribution format:** Poster  
**Contribution authors:** Nafsika Andriopoulou (Foundation for Research & Technology Hellas (FORTH)) – Emmanouela Apostolaki – Calliope Galanaki (Ephorate of Antiquities of Heraklion)

This pilot study investigates the preservation of microscopic SiO<sub>2</sub>-rich phytoliths in sediment samples from the Protopalatial settlement of Agriana in North-Central Crete, Greece, with a focus on the effects of fire and thermal alteration. The site of Agriana, used from the Late Prepalatial to the Neopalatial periods, was violently destroyed by fire in the Protopalatial MM IIA phase (c. 1800-1750 BC). Sediment samples were collected from destruction layers, pottery contexts, the interior of a small kiln, and the tumble and building material of a boundary wall surrounding the preserved core of the settlement. Optical Light Microscopy (OLM) analysis generally showed good preservation of phytoliths, though some exhibited signs of dissolution or breakage, particularly those with intricately decorated margins. The study found a predominance of morphotypes associated with grasses and other graminoids, while phytoliths from dicotyledonous plants were present in smaller amounts. The presence of diatoms, aquatic SiO<sub>2</sub>-rich microalgae, in some samples suggests a combination of terrestrial and aquatic influences. Notably, elevated levels of melted phytoliths in certain samples indicated exposure to intense heat. Thermal alterations varied across contexts, with significant impacts observed in samples from the kiln and destruction layers compared to those of the boundary wall and pottery contexts. These findings underscore the significant impact of fire on phytolith preservation and highlight the need for integrating phytolith analysis with other archaeobotanical and geochemical proxies to better understand site formation processes and (archaeo) environmental conditions. Future research incorporating mineralogical and pH analyses could further clarify the extent of thermal impacts.

14 PREHISTORIC EXPLOITATION OF WATERSCAPES AND AQUATIC RESOURCES

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Regular session  
**Session keywords:** aquatic ecosystems, zooarchaeology, isotope analysis, human-environment interactions, hunter-gatherers, Prehistory  
**Session organisers:** Mariana Nabais (IPHES - Institut Català de Paleoecologia Humana i Evolució Social) – Anna Rufà (ICArEHB - Interdisciplinary Center for Archaeology and the Evolution of Human Behaviour) – Asier García-Escárzaga (Universitat Autònoma de Barcelona) – Asia Alsgaard (SapienCE - Centre for Early Sapiens Behaviour | SEAS- Shaping European Leaders for Marine Sustainability)

SESSION ABSTRACT

A growing body of evidence has been recovered from several prehistoric sites showing that hunter-gatherer interaction with aquatic environments played a significant role in subsistence strategies, cultural development and technological innovation. The use of waterscapes - including rivers, lakes, wetlands, coastal areas and their resources - has been considered as a critical aspect of human adaptation. This session aims to bring together multidisciplinary research on the exploitation of waterscapes and the use of aquatic resources during prehistoric times, offering insights into the complexities of early human lifeways. We invite contributions exploring diverse aspects of the use of aquatic resources by hunter-gatherer groups, such as subsistence practices, tool technologies and site selection influenced by proximity to water. Some questions we want to address are: How did hunter-gatherer populations exploit aquatic food sources such as fish, shellfish, waterfowl, aquatic mammals and aquatic plants? What role did waterborne materials, like reeds and shells, play in tool making, daily life activities and symbolic human behaviour? To what extent did waterways facilitate the movement, exchange and social interactions of different prehistoric groups? This session also seeks to discuss methodological approaches to identify aquatic resource use in archaeological records, including zooarchaeology, lithic analysis, paleoenvironmental reconstruction, stable isotope studies, experimental archaeology, ethnoarchaeology, among others. By examining these multifaceted perspectives, we aim to develop a better understanding of the role of waterscapes in prehistoric adaptation and cultural evolution. Ultimately, this session will contribute to broader debates about human-environment interactions, showcasing the importance of aquatic landscapes in the everyday routines of our ancestors. Through case studies spanning various regions and time periods, we hope to highlight the significance of water and its resources in shaping human history, offering new insights into the relationship between humans, their environment and technology.

CONTRIBUTION ABSTRACTS

303. LAST INTERGLACIAL MOLLUSC EXPLOITATION IN WESTERN IBERIA: EVIDENCE FROM GRUTA DA FIGUEIRA BRAVA

**Contribution format:** Oral  
**Contribution authors:** Mariana Nabais (IPHES - Institut Català de Paleoecologia Humana i Evolució Social | UNIARQ – Centre for Archaeology. School of Arts and Humanities. University of Lisbon.) – João Zilhão (UNIARQ – Centre for Archaeology. School of Arts and Humanities. University of Lisbon)

This study examines the exploitation of aquatic ecosystems by Neanderthals during the Last Interglacial period (Marine Isotope Stage 5, or MIS-5), with a focus on evidence from Gruta da Figueira Brava in western Iberia. Detailed analyses of faunal assemblages, predominantly molluscs, crustaceans and birds, reveal systematic and sustained engagement with marine resources over a 20,000-year period. Molluscs, including limpets, mussels and brown crabs, formed over 50% of the faunal assemblage, highlighting their dietary significance. The selective harvesting of larger specimens and evidence of resource processing, such as roasting and boiling, indicate a deliberate and methodical approach to exploiting marine environments. The ecological context of the site, situated amidst diverse coastal and terrestrial ecosystems, provided Neanderthals with a stable, year-round resource base. Seasonal and spatial variations in mollusc collection suggest a sophisticated understanding of intertidal dynamics and resource availability. Taphonomic analysis supports the anthropogenic origin of the faunal remains based on patterns of burning, fragmentation and stratigraphic association with Mousterian industry. These finds challenge assumptions of opportunistic resource use, instead portraying Neanderthals as capable of sustained coastal adaptation and refined ecological strategies. The study situates Gruta da Figueira Brava within a broader comparative framework, aligning its assemblages with Middle Stone Age coastal sites in Africa. This evidence challenges the notion that Neanderthals lacked the behavioural sophistication to exploit coastal resources systematically. Instead, it demonstrates their ability to adapt to and exploit ecotonal environments effectively. Our results contribute to a better understanding of Neanderthal subsistence strategies, emphasising their ecological versatility and evolutionary parallels with early modern humans.

845. SURVIVING THE LAST GLACIAL MAXIMUM: THE ROLE OF LITTORAL RESOURCE EXPLOITATION FOR SOLUTREAN HUMAN POPULATIONS IN NORTHERN IBERIA

**Contribution format:** Oral  
**Contribution authors:** Asier García-Escárzaga (Universitat Autònoma de Barcelona . Institute of Environmental Science and Technology) – Rosa Arniz-Mateos (Leibniz Zentrum für Archäologie) – Igor Gutiérrez-Zugasti (Instituto Internacional de Investigaciones Prehistóricas de Cantabria | Universidad de Cantabria) – Elsa Duarte (Universidad de Oviedo) – Ricard. Fernandes (Max Planck Institute of Geoanthropology) – Marco De La Rasilla (Universidad de Oviedo)



Variations in past climate conditions had profound implications for human behaviour and the subsistence strategies developed by ancient human groups. Previous studies have identified the northern Iberian Peninsula as a refugium during the Last Glacial Maximum (LGM), underscoring its significance as a key location for understanding how harsh environmental conditions influenced the lifeways of foraging communities. The colder climate during this period triggered shifts in hunting strategies and mobility patterns along the coastal region. While marine resources were consistently utilized by Upper Paleolithic groups, the extent to which these resources supported human subsistence during the LGM remains poorly understood. To clarify the role of coastal resources during this time, it is essential to determine whether marine molluscs were intensively exploited despite the challenging climatic conditions. To address this question, stable oxygen isotope analyses were conducted on shells recovered from an archaeological site in Northern Iberia, dating to the Solutrean period. Stable oxygen isotope ratios serve as reliable indicators of seasonal seawater temperature variations experienced by molluscs in the past, allowing researchers to pinpoint the time of year when these organisms were collected by humans. In this study, stable oxygen isotope analyses were performed on *Patella vulgata* Linnaeus, 1758 limpets from Llonín Cave (Asturias, Spain). The goal was to determine whether these limpets were collected year-round, which would indicate a systematic and potentially intensive exploitation of molluscs. Furthermore, the isotope data were used to reconstruct climatic conditions during the LGM, providing deeper insights into the environmental challenges faced by human populations in this region.

**2222. CHANGING COASTLINES, STRANDED WHALES AND THE FINAL PALAEOLITHIC HUMAN PRESENCE IN NORTHERN DENMARK**

**Contribution format:** Oral  
**Contribution authors:** Felix Riede – Helena Dalager – Frederik Mygdam – Johanne Mouritzen (Aarhus University)

Humans began to reoccupy southern Scandinavia during the closing millennia of the Pleistocene. The prevailing view of these Final Palaeolithic foragers is that they were, first and foremost, terrestrial large-game hunters. After an early and likely failed colonisation episode during Greenland Interstadial 1e, groups equipped with arch-backed and large tanged points as well as a variety of basic domestic lithic tools spread – thinly – to the entirety of present-day Denmark, including its northern extremity. The very top of the Jutland peninsula, today known as Vendsyssel, constitutes the northernmost extension of the human world at this time; barren, exposed to wind, weather and the ocean, and likely characterised by rapidly shifting coastlines due to a complex interplay between eustatic and isostatic changes. We have previously hypothesised that unusually frequent whale strandings made this otherwise inhospitable stretch of land and its changeable coastline temporarily attractive to these Final Palaeolithic foragers. Using (i) site catchment analysis, (ii) zooarchaeological, and (iii) protein residue analysis, we here extend and test this hypothesis. In so doing, we demonstrate that stranded and beached whales – as well as perhaps other coastal jetsam and flotsam – were major resources that facilitated and enabled the human presence in this coastal area during the relatively warm Greenland Interstadial 1a-c.

**714. EVIDENCE FOR FISHING INTENSIFICATION DURING THE LATER STONE AGE AT HOFFMAN’S/ROBBERG CAVE IN SOUTH AFRICA**

**Contribution format:** Oral  
**Contribution authors:** Asia Alsgaard (University of Bergen) – Judy Sealy (University of Cape Town, Cape Town, South Africa) – Carin Andersson (Norwegian Research Centre (NORCE)) – Mimi Lam – Karen Van Niekerk (University of Bergen)

During the Later Stone Age in South Africa, there is increasing evidence for less mobile coastal hunter-gatherers based on their subsistence practices. We add to this growing body of evidence by documenting the evidence for fishing intensification and resilience from archaeological sites on the Robberg Peninsula, a location that provided unique access to both local endemic species such as the white stumpnose (*Rhabdosargus globiceps*) as well as open ocean fish species such as the Cape yellowtail (*Seriola lalandi*). We present new data on Cape yellowtail body size reconstructed using 3D geometric morphometrics from fish remains excavated from Hoffman’s/Robberg Cave (4,570-3,210 cal BP). We compare these data with previous analyses of the fish remains from both Hoffman’s/Robberg Cave and nearby Nelson Bay Cave, located on the same peninsula. Following a decline in the size and relative abundance of the white stumpnose, we suggest the inhabitants may have shifted their dietary focus to include a high abundance of open ocean pelagic fish such as the Cape yellowtail. We conclude by suggesting the Robberg peninsula provided specific access to these fish species along with other coastal resources including the Cape fur seal which may have helped facilitate longer term residential stays at these sites.

**1153. MOLLUSK AND CRUSTACEAN PROCESSING IN THE MESOLITHIC: FEATURE C OF THE CABEÇO DA AMOREIRA SHELL MIDDEN (MUGE, PORTUGAL)**

**Contribution format:** Oral  
**Contribution authors:** Beatriz Pinto (University of Algarve- ICArEHB) – Maria João Valente (University of Algarve- CEAACP) – Célia Gonçalves (University of Algarve- ICArEHB)

The Mesolithic period in the Iberian Peninsula (c. 8.5–6 kyr BP) was characterized by significant environmental changes that influenced human subsistence strategies, particularly through the intensified exploitation of marine and riverine resources. The Muge shell middens, with their exceptionally well-preserved faunal assemblages, provide a unique context for examining these adaptive responses. This study focuses on the remains of mollusks and crustaceans recovered from Feature C at the Cabeço da Amoreira shell midden, a context interpreted as a possible combustion structure. By integrating taxonomic and taphonomic analyses, we aim to evaluate the contribution of mollusks and crustaceans to Mesolithic dietary practices and to explore their association with this anthropogenic feature. Additionally, our research investigates post-depositional processes and site formation dynamics, highlighting the roles of both natural and human agents in the accumulation and preservation of faunal remains. Our methodological approach combines traditional zooarchaeological techniques with cutting-edge quantitative methods, including biometric analysis and statistical modeling of species distribution. The research also incorporates geoarchaeological data to contextualize the depositional environment and assess preservation conditions. This multi-proxy approach allows for a more comprehensive understanding of resource exploitation patterns, seasonal gathering strategies, and the spatial organization of food processing activities within the site. The results of this study will contribute to ongoing debates about Mesolithic adaptations to environmental change and the role of aquatic resources in prehistoric subsistence economies of Atlantic Iberia.

**1415. FROM SHORE TO SEA: EXPLORING THE ROLE OF WATERSCAPES IN MESOLITHIC SOCIETIES OF SW IBERIA**

**Contribution format:** Oral  
**Contribution authors:** Ana Cristina Araújo (Archaeosciences Laboratory, PC, IP, Lisboa | CIBIO - Research Center In Biodiversity and Genetic Resources/University of Porto | Uniarq, University of Lisbon)

Mesolithic communities of the western Iberian Peninsula developed a strong reliance on marine resources, leading to the formation of several dozen shell middens. These sites are a defining feature of the archaeological record of this period, offering insight into the last hunter-gatherer societies and their way of life. During the earliest phase (c. 11,000 – 8400 cal BP), shell middens appear scattered along the Portuguese present-day coastline. Typically small in size, their malacofaunal content reflects the characteristics of the local substrate and surrounding geomorphological conditions. From around 8,500 BP onwards, during the Late Mesolithic, the archaeological record reveals a significant shift in settlement patterns, now concentrated in the innermost areas of estuaries shaped by the maximum extent of marine influence due to global warming. Many of these Mesolithic middens were not solely dedicated to the exploitation and immediate consumption of molluscs. Instead, they reflect a much broader range of activities, from hunting to artifact production. The diversity, abundance, and state of preservation of the remains found in many of these middens, along with their spatial organization within the habitat, provide opportunities for multidisciplinary research, offering a more comprehensive understanding of these past populations and their relationship with waterscapes

**1725. USING SPATIAL ANALYSIS TO INVESTIGATE MESOLITHIC HUNTER-FISHER-GATHERER (HFG) LANDSCAPE INTERACTION IN DIFFERENT COASTAL AREAS OF ATLANTIC EUROPE**

**Contribution format:** Oral  
**Contribution authors:** Kelly Gibbons (University of Oslo)

It has long been recognised that Mesolithic populations were living in coastal areas across Europe and exploiting resources distinct to these areas such as fish, shellfish and marine mammals. This appears to have culminated in the Late Mesolithic in formation of large and perhaps complex societies, based on specialist coastal adaptation. While evidence for these communities has increased considerably in recent years, the nature of archaeological investigation tends to be ‘site’ specific, meaning we lack understanding of how HFGs interacted with their wider landscape and environment. Investigation has also focused on the economic and subsistence benefits of coastal adaptation, ignoring less tangible motivations. The paper will present the approach taken by one of the projects incorporated in the HORIZON Marie Skłodowska-Curie Action (MSCA) Doctoral Network Archaeological Coastal Heritage: Past, present and future of a hidden prehistoric legacy (ArChE) project. The project is re-evaluating existing data to better understand social and communicative meaning and function and cosmological aspects of the populations under study, and how this influenced their use of the landscape. The project is approaching this issue using a number of methods, and this paper will focus on the application of GIS techniques, including



viewshed analysis and least cost analysis to existing data from three discrete areas of Europe, SE Norway, N Spain and W France. The three areas under study are very different in their current climate, topography, preservation and survival as well as material expression so it is hoped the project will allow us to bridge gaps between each location and give a fuller understanding of hunter-gatherer-fisher landscape interaction in Mesolithic Europe.

1605. APPLICATION OF SCLEROCHRONOLOGICAL METHODS TO MUSSEL SHELLS FROM A NEOLITHIC CAVE SITE – WHAT CAN WE LEARN FROM THESE ARCHIVES?

**Contribution format:** Oral  
**Contribution authors:** Mario Bodružić – Dario Vujević (University of Zadar, Department of Archaeology) – Melita Peharda (Institute of Oceanography and Fisheries, Croatia) – Meghan Buchnell (Memorial University, Canada) – Davi. Gillikin (Union College, USA) – Elizabeth Harper (University of Cambridge) – Bern. Schöne (Johannes Gutenberg Universität Mainz) – Hana Uvanović (Institute of Oceanography and Fisheries, Croatia) – Anouk Verheyden (Union College, USA) – Niels De Winter (Vrije Universiteit Amsterdam, the Netherlands)

During systematic archaeological excavations conducted in Ždrilo Cave (near Rovanjaska, eastern Adriatic coast), a high abundance of marine shells, partly fragmented, were discovered, including those of oysters (*Ostrea edulis*), mussels (*Mytilus galloprovincialis*) and gastropods. In the recorded stratigraphic sequence, shell deposits made a significant proportion of the layers that can otherwise be interpreted as fumier deposits and are associated with the seasonal use of the cave for the purpose of herding sheep and/or goats. The layers in the cave have been dated to Early and Middle Neolithic. Bivalve shells are considered important archives of past environmental variation as well as human behaviour and foraging. In the framework of the research project BivalveSPEECH, archaeological specimens of *M. galloprovincialis* were analysed using sclerochronological methods. Isotope geochemical analysis ( $\delta^{18}O$ ,  $\delta^{13}C$ ) was conducted on shell carbonate samples drilled from shell cross-sections. Results were compared to published results from modern *M. galloprovincialis* shells from the eastern Adriatic Sea and discussed in the context of marine environmental conditions during this period as well as human foraging behaviour. The study provides new insights into settlement patterns, mobility and subsistence strategies of Neolithic populations occupying Middle Dalmatian coastal zones.

1167. PERSONAL ORNAMENTS FROM THE MESOLITHIC SITE OF LA CHORA CAVE (CANTABRIA, NORTH-ERN IBERIA)

**Contribution format:** Poster  
**Contribution authors:** Oriol Montero-Buch (I.U. d’Investigació en Arqueologia i Patrimoni Històric (INAPH), Universitat d’Alacant) – David Cuenca-Solana (Ins. Internacional de Investigaciones Prehistóricas de Cantabria (IIIPC), Universidad de Cantabria | Centre de Recherche en Archéologie, Archéosciences, Histoire (CRéAAH), Université de Rennes) – Asier García-Escárzaga (Department of Prehistory, Universitat Autònoma de Barcelona | Institute of Environmental Science and Technology (ICTA), Universitat Autònoma de Barcelona) – Igor Gutiérrez-Zugasti (Ins. Internacional de Investigaciones Prehistóricas de Cantabria (IIIPC), Universidad de Cantabria)

Personal ornaments are considered indicators of behaviour complexity in Prehistory. Their use by forager groups is evidenced throughout the entire Upper Palaeolithic and in the European continent they represent one of the few symbolic expressions that persists during the Pleistocene-Holocene transition. In this poster we present the first results on the personal ornaments from the two most representative stratigraphic units at the Mesolithic shell midden site of La Chora cave (Cantabria, northern Iberia). Most of the personal ornaments were manufactured from aquatic shells (both marine and freshwater). The study was carried out from an interdisciplinary perspective, including taxonomic, taphonomic, biometric and use-wear analysis. Thus, we present the taxonomic diversity used by the different hunter-gatherer-fisher groups that inhabited the cave, as well as a proposal of the chaîne opératoire from the selection and collection of the shells through their manufacture, use and final abandonment. Furthermore, in comparison to ethnographic and archaeological evidence, we examine the possible roles that these elements may have played in the daily life of the foraging groups. Overall, more than 50 personal ornaments and 20 elements considered potential raw material accumulations have been studied. The two most used taxa are *Tritia reticulata* (Linnaeus, 1758) and *Trivia* sp. J. E. Gray, 1837, which together account for more than half of the assemblage and are characteristic of the Mesolithic of northern Iberia. Various manufacturing techniques are present, and use-wear analysis has documented different stages of use, ranging from the pierced ornaments with no signs of wear to those used for a prolonged period. These results allow us to interpret the site, particularly the two oldest Mesolithic layers, as a centre of ornament production and use of these symbolic elements.

1185. INDIGENOUS PEOPLE FROM THE CANARY ISLANDS WERE ALSO FISHERS: LAST ICTHYOARCHAEOLOGICAL RESEARCH OF THE ARCHIPELAGO

**Contribution format:** Poster  
**Contribution authors:** Simon-Pierre Gilson – Javier A. Cruz Viera – Aitor Brito-Mayor – Jonathan Santana (Universidad de Las Palmas de Gran Canaria)

In the Canary Islands, the faunal remains associated with marine resources have received limited attention, often being overlooked or considered secondary. Since 2022, the IsoCan (ERC) project has focused on ichthyological remains from several pre-colonial settlements in the Canary Islands, conducting zooarchaeological studies. These studies have begun to reshape our understanding of the significance of marine resources for the indigenous populations of the Canaries. For example, the research has identified specialized sites dedicated to processing fish before they were transported to other locations. The analysis also suggests a direct correlation between ecological richness and the frequency of archaeological species found. Additionally, it appears that direct fishing occurred along rocky shores. Based on the timeline of findings, fishing activities seem to have been a consistent practice throughout the indigenous occupation of the islands. Compared to previous research, this analysis confirms the importance of the parrotfish (*Sparisoma cretense*) for past populations while also highlighting the significance of other species, such as garfish (*Belone belone*). Furthermore, the study has uncovered the presence of unexpected species like tuna and sharks.

15 CONTEXTUALIZING CREMATIONS DURING THE EUROPEAN LATE PREHISTORY AND PROTOHISTORY

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** Cremation, Bioarchaeology, Late Prehistory, Protohistory, Funerary ritual  
**Session organisers:** Paula Becerra Fuelleo (Department of Prehistory and Archaeology, University of Granada) – Vasso Papathanasiou (Department of History and Archaeology, Aristotle University of Thessaloniki) – Oriana Chiappa (Department of Archaeology, Ghent University | Department of Archaeology, Environmental changes and Geochemistry, Vrije Universiteit Brussel (VUB))

SESSION ABSTRACT

Cremation as a mortuary practice has a long history in human culture and has been employed across a range of geographic and chrono-cultural contexts. In Europe, the intentional use of fire for the disposal of the dead can be traced back to the Mesolithic, and it has manifested in various forms throughout prehistory and protohistory. Even though cremation was widely practiced in ancient societies, it was often overlooked in bioarchaeological research, largely due to the fragmented nature of burnt skeletal remains. However, recent advancements in methodology have underscored the importance of these remains for archaeological interpretation. Osteological analysis of cremated bones is crucial for understanding the cremation process, reconstructing the biological profiles of the deceased, and assessing the burning conditions and treatment of bodies. Bioarchaeological studies have demonstrated that cremation was far from a static and uniform tradition; rather, it exhibited considerable variation across different communities and frequently intersected with other funerary practices, such as inhumation. This session seeks to explore the diverse ways in which cremation was practiced within a broad chronological and geographical framework, aiming to a better understanding of this multifaceted funerary practice within different bioarchaeological and sociocultural contexts. Special attention will also be given to the complex and intertwined relationship of cremation with other mortuary practices. We welcome contributions from across Europe, spanning from the Mesolithic period to the Iron Age, including but not limited to:

- Bioarchaeological studies of burnt skeletal remains employing various methods (macroscopic, microscopic, biomolecular etc.) with an emphasis on contextual analysis.
- Case studies and theoretical approaches addressing the coexistence of cremation and other disposal methods within the same community, exploring their potential sociocultural implications.

CONTRIBUTION ABSTRACTS

752. SWOT-ANALYSING THE BIOARCHAEOLOGY OF CREMATION’S GOLDEN AGE

**Contribution format:** Oral  
**Contribution authors:** David Gonçalves (Património Cultural IP/Biopolis | Research Centre for Anthropology and Health | Center for Functional Ecology)



The recent impulse in archaeological cremation research has been fuelled by several theoretical and methodological advances since the late 20th century which have raised the bar toward new levels of excellence. Due to their usual poor preservation, cremated skeletal remains have usually been seriously neglected by bioarchaeologists even though cremation has been a very popular choic. since prehistory. However, the current and unprecedented surge in cremation related studies has been supported by an important increase in the number of experts on burnt skeletal remains and in the amount of papers published on the subject. It could be argued that the bioarchaeology of cremation presently experiences a golden age benefitting from expanded networks and interdisciplinary collaborations while piggybacking on the wave of the Third Science Revolution. The present talk will discuss the state of affairs of the bioarchaeology of cremation field by carrying out a SWOT analysis with the objective of identifying its strengths, weaknesses, opportunities and threats.

**732. THE COEXISTENCE OF CREMATION AND INHUMATION IN MEGALITHIC BURIALS OF SOUTHEASTERN IBERIA**

**Contribution format:** Oral  
**Contribution authors:** Paula Becerra Fuelleo – Gonzalo Aranda Jiménez (Department of Prehistory and Archaeology, University of Granada) – Marta Diaz-Zorita Bonilla (University of Tübingen) – Miriam Vílchez Suárez – Sonia Robles Carrasco – Margarita Sánchez Romero (University of Granada)

Burnt human bones have been discovered in megalithic contexts in Southeast Iberia since the 19th century. However, these remains were traditionally interpreted as the result of cleansing or purifying rituals performed on skeletonized individuals within megalithic chambers, rather than as evidence of a cremation rite. This interpretation was based on the prevailing assumption that cremation as a funerary practice only emerged in the southeastern Iberian Peninsula during the Late/Final Bronze Age (ca. 1250-800 BC). Our recent investigation at Los Milanes necropolis (Abla, Almería) has used a multiproxy analysis, combining a detailed anthropological study with analytical techniques (FTIR-ATR, Carbon, Oxygen and Strontium Analyses) to determine both the cremation event and the pre-burning condition of the bodies exposed to fire. This is the first application of such analyses in Iberian megalithic contexts and provides evidence for the cremation of corpses. The cremated deposit, composed of 28,000 human bone fragments, has yielded significantly older radiocarbon dates than those previously discussed for cremation in the region, concentrating in the first quarter of the III millennium, particularly in the 28th century cal BC. This chronology now situates the cremation rite as a one of the chalcolithic funerary rituals. These findings indicate that cremation rites coexisted alongside inhumation within megalithic cemeteries indicating the contemporaneity of multiple funerary practices in the Chalcolithic period. By reassessing burnt remains in megalithic contexts of Southeast Iberia, this study challenges the prevailing assumption that all cremated remains in these monuments resulted from Bronze Age reutilizations or purifying rituals on skeletal remains.

**774. THE USE OF FIRE IN THE MEGALITHIC NECROPOLIS OF LA LENTEJUELA (TEBA, SPAIN): BETWEEN THE COLLECTIVE AND THE INDIVIDUAL BURIALS**

**Contribution format:** Oral  
**Contribution authors:** Jesús Díaz (Universidad de Granada) – Paula Becerra Fuelleo (University of Granada) – Marta Díaz-Zorita Bonilla (University of Tübingen) – Serafín Becerra Martín (Museo Histórico de Teba) – Adolfo Moreno Márquez (University of Almería) – Juan Cantillo Duarte – Eduardo Vijande Vila (University of Cádiz)

The megalithic necropolis of La Lentejuela is located in the northwest of the province of Málaga (Spain) and comprises up to 13 megalithic structures. Since 2020 the University of Cádiz have been leading excavations where a total of 4 megalithic structures have been completely excavated until now. In this paper, we analyze the human bone assemblage from one of those structures (I), where we found some human remains affected by fire and the purpose of this paper is to decipher how it contributes to our understanding of funerary patterns observed during the transition from the 3rd to the 2nd millennium BC. We have identified a phase of individual Bronze Age burials, resulting from the reuse of the structure, a common phenomenon for the time period. In the lower levels, we found a level dated to the Chalcolithic of collective burials with the presence of thermally altered bones. The aim of this study is to understand the functional dynamics of the structure and the role of fire as a determining factor in its potential reuse or closure. In addition, we would like also to highlight with this work the diversity of funerary practices and the different uses of the space and the importance of recognizing the coeval practices during the Late Prehistory of Europe.

**176. IBERIAN CREMATIONS. THE CASE OF THE NECROPOLIS OF PIQUÍA (ARJONA, JAÉN, ANDALUCÍA)**

**Contribution format:** Oral  
**Contribution authors:** María Sedeño Ráez (University Institute for Research in Iberian Archaeology (University of Jaén))

The Iberian culture comprises a set of societies that inhabited the Iberian Peninsula during the protohistoric period, approximately between the 6th and 1st centuries BC. Although these communities share common cultural traits, they also present regional differences that configure a diverse and heterogeneous cultural landscape. One of the most relevant territories for the study of this culture is the Upper Guadalquivir, located in the area of the headwaters of the river that gives it its name. In the funerary field, the cremation rite is considered a dominant practice in the entire Iberian culture, although each community develops particular rituals that reflect its specific cultural identity. We present the preliminary results obtained from the research at the Iberian necropolis of Piquía (Arjona, Jaén, Andalucía). The osteological investigation has been carried out applying the classical macroscopic methodology, although we have also resorted to the punctual analysis of one of the structures through Infrared Spectroscopy (FTIR-ATR). The necropolis is part of a transition period between the Iberian world and the influence of the Roman exogenous world. The analysis of the cremations, both at the osteological level and in terms of the funerary ritual, offers the opportunity to approach this stage of the process of cultural hybridisation. It is important to highlight that only the elites of the oppida (fortified settlements) had privileged access to the funerary spaces. Although this implies that the information collected is limited to a part of the population, the archaeological record allows us to interpret how this social group represented and identified itself. The multiple funerary structures, the varied grave goods and cremation, as a unifying ritual element, are key components in understanding this complex cultural dynamic.

**1398. BETWEEN STONE AND ASH IN BRITTANY: CREMATION AND FUNERARY PRACTICES IN THE NEOLITHIC MULTI-CHAMBERED CAIRN OF GOASSEAC’H, CARHAIX-POUGUER, FRANCE**

**Contribution format:** Oral  
**Contribution authors:** Anastasija Brancic (Laboratory of Prehistoric Archaeology and Anthropology, Faculty of sciences, University of Geneva) – Florian Cousseau (Laboratory of Prehistoric Archaeology and Anthropology, Faculty of sciences, University of Geneva | Department of Archaeology, Durham University) – Astrid Suaud-Préault (UMR6566-CReAAH) – Valérie-Emma Leroux (Iggdrasil) – Marie Besse (Laboratory of Prehistoric Archaeology and Anthropology, Faculty of sciences, University of Geneva)

The Middle Neolithic (4700–3500 BC) in Western France is predominantly associated with megalithic funerary practices, characterized by primary deposits within chambered tombs. Furthermore, Brittany is often known for the absence of bones due to the acidity of its soil. The multi-chambered cairn of Goasseac’h, near Carhaix-Plouguer in Central Brittany, challenges these patterns. One of its nine passage tombs, named Dolmen A, presents an exceptional case: a cremation deposit within a structured arrangement of stones. Given the rarity of cremation during this period—especially in megalithic tombs—this discovery provides new insights into Neolithic mortuary customs and raises questions about burial traditions for passage tombs. This study investigates the funerary practices of Dolmen A using a multidisciplinary approach that integrates osteological analysis of cremated remains, spatial distribution studies, architectural assessment, and possible traces of inhumations. Previously examined funerary artifacts, such as ceramics and personal adornments, are incorporated to help reconstruct depositional practices and link them to the broader research. By situating Dolmen A within the regional context of Middle Neolithic Brittany and comparing it to wider European megalithic traditions of the 5th millennium BC, this research highlights both local burial variability and the broader significance of cremation in monumental funerary architecture. The findings offer new insights into the social, ritual, and symbolic significance of cremation, demonstrating the complexity and regional diversity of Neolithic burial customs.

**900. THE USE OF CREMATION IN MORTUARY PRACTICES IN SOUTHERN GAUL DURING THE SECOND IRON AGE**

**Contribution format:** Oral  
**Contribution authors:** Elodie Caserta – Gaelle Granier (UMR 7268 ades (CNRS, EFS, Aix-Marseille université)) – Lola Bonnabel (Inrap | UMR 8215 Trajectoires)

Thanks to the development of preventive archaeology in France and of archaeoethanatology research methods (such as the detailed study of cremations), recent years have seen a proliferation of data documenting the mortuary practices in Southern Gaul during the Second Iron Age (5th - 1st centuries BCE). In addition to this recent data, important researches carried out over the last thirty years has enabled us to develop a comprehensive overview of the funerary practices of Gaul populations during the Iron Age. Cremation, as a means of transforming the



dead body, gradually became the norm in southern Gaul, from the Late Bronze Age to the 1st century CE (Dedet, 2004). But it was not used in a linear, systematic way. For example, it was predominant among Gaul populations at the beginning of the Second Iron Age, and from the 3rd BCE onwards. Nevertheless, these general trends take on more varied local realities: in mountain areas (Southern French Alps: Hautes-Alpes, Alpes-Maritimes, Alpes-de-Haute-Provence), the so-called High Mountain populations adopted both cremation and inhumation to transform the body throughout the period under consideration. Beyond its evolution in time and space, the adoption of cremation took a variety of forms in protohistoric funerary contexts, such as graves made from pyres, secondary deposits in simple pits or under burial mounds, thus illustrating the diversity of funerary practices both in the mountains and on the plains of southern Gaul. Drawing on a corpus of varied funerary structures from throughout the Second Iron Age, put into perspective with data from archaeological documentation, this work will offer a viewpoint on funerary practices linked to cremation in the Gallic populations of southern Gaul.

515. TOWARDS RE-CONTEXTUALIZING THE EARLY CYCLADIC II HUMAN CREMATION AT DASKALIO, KEROS

**Contribution format:** Oral  
**Contribution authors:** Eleni Gourgouleti (Independent | National and Kapodistrian University of Athens)

Until recently, the practice of human cremation was missing from the archaeological record of the 3rd millennium BC Cyclades in the Aegean, where inhumation has been the typical funerary practice throughout the Early Bronze Age. As a result, the unique discovery of cremated human remains on the islet of Daskalio across Keros serves both as a methodological and an interpretive challenge. Traditionally, archaeological search has been focusing on the reasons behind the emergence of the practice of cremation, thus prioritizing an etic rather than an emic perspective. As such, the practice was diffused or imposed, adopted or adapted from elsewhere. Since however, there are no universals as to the reasons why some societies choose to burn their dead over burying them, and why some societies combine or interchange inhumation and cremation, those can vary and eventually mislead us. There lies the need for a more flexible and reflective framework that would allow us to move beyond the explanatory limitations of the traditional approaches. For this venture the concept of the community of practice is proposed. It refers to a group that is (re-)structured by the participation of its members in a particular activity with a shared goal. In this way, the human cremation at Daskalio can be re-introduced to its wider sociocultural context, arguably as a differentiated strategy for distinction at death through the manipulation of the simultaneously destructive and reconstructive aspect of fire to representations of the body and the self. The adequacy of the proposed concept relies on its multiscalar applicability which could enable us to associate and compare the practice of cremation with other contemporary practices of social distinction, individual or collective identity making and processes of becoming within the Early Cycladic II period.

1497. B'URN'ING THE DEAD IN THE LATE BRONZE AGE AEGEAN: OSTEOARCHAEOLOGICAL INSIGHTS FROM SECONDARY CREMATION BURIALS FROM ARGOS, GREECE

**Contribution format:** Oral  
**Contribution authors:** Niki Papakonstantinou (Department of History and Archaeology, Aristotle University of Thessaloniki, Greece | The Marc and Ismene Fitch Laboratory for Archaeological Science, British School at Athens) – Evangelia Pappi (Ephorate of Antiquities of Argolid, Hellenic Ministry of Culture, Greece) – Vassiliki Papathanasiou (Department of History and Archaeology, Aristotle University of Thessaloniki, Greece) – Elisavet Stamataki – Christophe Snoeck (Archaeology, Environmental Changes & Geo-Chemistry, Vrije Universiteit Brussel) – Sevasti Triantaphyllou (Department of History and Archaeology, Aristotle University of Thessaloniki, Greece)

Cremation has been long considered as an exceptional practice throughout the entire Aegean Bronze Age. However, increasing evidence of Bronze Age cremations has been revealed in the last decades, while their number increases considerably towards the end of the Late Bronze Age (LH IIIC, 12th and early 11th centuries BCE). During this period cremation burials with or without urns are attested in a wide geographic area, appearing in various contexts, including rock-cut chamber tombs, stone tumuli and pits. Nevertheless, integrated osteological and archaeological investigations of cremation burials that would provide a more comprehensive evaluation and picture of the cremation practice are few. The aim of this paper is to present the results from the bioarchaeological study of cremated skeletal remains deriving from Argos in the Argolid (Greece). The 2003 rescue excavation carried out at the National Stadium of the city yielded 27 secondary cremation deposits dating to the LH IIIC period. The burnt human remains, and a variety of objects were deposited inside cinerary amphoras of various sizes, while in a few cases, ash layers along with burnt bones and grave goods were found below the urns. On the basis of osteobiographical profiles (minimum number of individuals, age at death, biological sex, pathologies) and preservation patterns (e.g. quantity of bones, skeletal representation), we will discuss manifold aspects of the funerary practices. The combustion process and the burning conditions of the bodies will be explored through

the thermal alterations of the bones and analytical methods (FTIR-ATR, carbon and oxygen isotopes), while the post-cremation treatment and the final deposition of the cremains will be examined through the lens of archaeological evidence.

2197. OSTEOARCHAEOLOGICAL ANALYSIS OF EARLY IRON AGE CREMATION BURIALS FROM CENTRAL MACEDONIA, GREECE

**Contribution format:** Oral  
**Contribution authors:** Vasso Papathanasiou (Aristotle University of Thessaloniki) – Elisavet Stamataki – Christophe Snoeck (Vrije Universiteit Brussel) – Asterios Lioutas (Ephorate of Antiquities of Thessaloniki City) – Vasiliki Missailidou Despotidou (Ephorate of Antiquities of Thessaloniki Region) – Sevasti Triantaphyllou (Aristotle University of Thessaloniki)

Cremation burials are commonly found in the archaeological record of prehistoric and protohistoric Aegean. In the region of Macedonia, the practice of cremation appeared as early as the Late Neolithic and continued to be applied during the Bronze Age. During the Early Iron Age, cremation became more widespread, with an increasing number of cemeteries with deposits of burnt human remains. However, osteological studies on these remains are still limited. This presentation aims to explore cremation practice in central Macedonia during the Early Iron Age (11-8th c. BCE), focusing on two cemeteries: Polichni and Nea Philadelphia, Thessaloniki. Both cemeteries have yielded numerous urned cremation deposits, accompanied by various artefacts. This presentation aims to explore cremation practice in these cemeteries through an interdisciplinary approach. The macroscopic analysis of the burnt skeletal remains will focus on reconstructing the biological profiles of the individuals and evaluating thermal alterations (e.g. warping, coloration). Additionally, infrared and isotopic data (FTIR-ATR, carbon and oxygen isotopes) will provide valuable insights into burning conditions, fire intensity, and body treatment. Finally, integrating archaeological and osteological evidence will shed light on the socio-cultural dimensions of this multi-layered practice.

2195. ANALYZING THE BIOLOGICAL PROFILE OF CREMATED INDIVIDUALS FROM HELLENISTIC AND ROMAN PERIOD THESSALONIKI

**Contribution format:** Oral  
**Contribution authors:** Christina Kakasa – Panagiota Bantavanou (Laboratory of Physical Anthropology, Democritus University of Thrace) – Frank Siegmund (Abt. Ur- und Frühgeschichtliche Archäologie, University of Münster) – Konstantinos Moraitis (Department of Forensic Medicine and Toxicology, National and Kapodistrian University of Athens) – Maria Eleni Manthou (Laboratory of Histology-Embryology, Aristotle University of Thessaloniki) – Christina Papageorgopoulou (Laboratory of Physical Anthropology, Democritus University of Thrace)

Cremation during Greek antiquity was a common burial practice, increasing in frequency during the Hellenistic (323-31 BCE) and the Roman (31 BCE – 324 CE) periods. During cremation, however, the human body and consequently the skeleton undergoes intense alteration and destruction, preventing standard anthropological methods to perform efficiently retaining the identity of the individual largely unknown. This project attempts to explore the practice of cremation by identifying the biological profile (age-at-death) and the taphonomical alterations of the bone microstructure emerging by high temperatures. For this, age-at-death was assessed through the application of a new histomorphometric method based on Haversian System Density (HD) regression equation (Bantavanou et al., 2025) modified for cremated femur bones. The modification of the method was conducted on experimentally cremated (400-900°C) modern individuals (n=19) with documented data. The Percentage of Difference (PoD) was calculated between the HD values before and after cremation for every 100°C. HD values were mathematically corrected according to the PoDs. The new method was applied on 30 cremated individuals dated to the Hellenistic (n=11) and Roman (n=15) period Thessaloniki in northern Greece. The modified method produced accurate age estimates with standard estimation error of ±5 years. The age-at-death of the ancient cremated individuals was estimated at 42 years for the Hellenistic and 43 years for the Roman period, respectively. While, histological analysis of the taphonomical alterations provided information (i.e degrees of cremation) regarding the practice of cremation. Overall, our methodology provided significant information for the biological profile of ancient cremated individuals rendering a significant part of the ancient world accessible for demographical analysis. Funding: ERC-Consolidator Grant CityLife (Project: 101126337).

816. BIOARCHEOLOGY OF CREMATION IN THE MIDDLE BRONZE AGE EAST OF THE CARPATHIANS

**Contribution format:** Oral  
**Contribution authors:** Mihai Constantinescu (Faculty of History, University of Bucharest)



In the hilly area east of the Carpathians, two archaeological cultures, Monteoru and Costișa, developed throughout the Middle Bronze Age (2200-1500 BC). Both cultures are extensively documented from an archaeological perspective, particularly regarding their funerary practices, several hundred inhumation burials being published and discussed in the literature. Inhumation in large cemeteries was the dominant funerary rite of these communities, with individuals exhibiting relatively standardized orientations, body placements and grave goods. The presence of cremation as a secondary funerary rite in these cultures has been only briefly addressed, no cremation grave being published in detail, but rather mentioned in general overviews. Based on recent discoveries from the cemetery at Cărlomănești-Arman, on the burials from Năeni-Colarea and the grave from the settlement at Poduri, we will present a bioarcheological perspective on cremation practices east of the Carpathians during the Middle Bronze Age. We will discuss the archaeological contexts in which cremated remains have been found, their chronology, an analysis of burning temperatures, the preserved skeletal segments and their weight. These aspects will be analyzed in comparison with similar practices within the neighboring archaeological cultures to explore the significance and origins of this funerary treatment in a region where inhumation was the prevailing rite.

**1691. THERMALLY ALTERED HUMAN REMAINS FROM PREHISTORIC AUSTRIA: A HISTOTAPHONOMIC ANALYSIS**

**Contribution format:** Oral  
**Contribution authors:** Estella Weiss-Krejci (University of Vienna) – Caroline Partiot (Austrian Archaeological Institute, Austrian Academy of Sciences)

Numerous ethnographic, historical, and archaeological studies have demonstrated that cremation is not a uniform practice. Indeed, there are many differences in the method of burning, the positioning of the body, and the temperature. This presentation explores the issue of variability in thermally modified bones from the perspective of histotaphonomy, an archaeological method for drawing conclusions about ancient burial practices and depositional environments. Histotaphonomy involves the analysis of the microscopic structure of bone to assess postmortem biogenic degradation and diagenetic processes. In recent years, the number of studies dealing with the histotaphonomy of thermally altered bone has significantly increased. This paper presents the results of histotaphonomic analyses of bone samples from Austria using transmitted light microscopy and SEM. The time periods range from the Urnfield Culture to Late Antiquity. The presentation explores the similarities and differences observed and discusses the implications for our understanding of the state of the body prior to cremation and broader funerary ritual practices.

**2479. THE AGE OF DEATH AND FIRE: DATING BURIAL CUSTOMS BY RADIOCARBON AND CORRESPONDENCE ANALYSIS AT LATE BRONZE AGE CEMETERY, INZERSDORF**

**Contribution format:** Oral  
**Contribution authors:** Michaela Fritzl (Austrian Archaeological Institute, Austrian Academy of Science)

The Late Bronze Age is marked by an increasing homogenization of material culture and burial customs. The cemetery of Inzersdorf, situated in the Lower Traisen Valley, Austria, serves as a case study to examine diachronic changes in burial practices. This paper interprets radiocarbon data from 49 calcined human bone samples and employs correspondence analysis of grave contexts. The carefully integrated dataset enables the precise delineation of the cemetery’s chronological structure in relation to the burial practices, which include body-sized graves, graves encircled by ditches, and urn graves. Insights into rituals or ancestral veneration emerge from temporal discrepancies in graves with multiple occupation. The analysis indicates the cemetery’s early origin at around 1400 BC, at the transition from the Middle to the Late Bronze Age, and identifies two peak phases of activity before burial practices decline around 950 BC. The integration of typo-chronological markers, 14C data, and comparisons with nearby contemporary cemeteries reveals a complex temporal framework, emphasizing the fluidity and regional variability of burial practices. This challenges assumptions of a linear development in mortuary rites and establishes an absolute as well as relative chronology of the Late Bronze Age for eastern Austria.

**1528. THE ROLE OF CREMATION CUSTOM IN THE EARLY METAL PERIOD OF THE SOUTHEASTERN BALTIC REGION**

**Contribution format:** Oral  
**Contribution authors:** Lijana Muradian (Lithuanian Institute of History)

This presentation analyzes cremation as a complex mortuary practice in the southeastern Baltic region during the Early Metal Period (2nd–1st millennium BC). During this time, cremation first appeared in the mentioned region. The emergence of cremation, alongside other burial practices such as inhumation and barrow burials, provides a unique opportunity to study the social and cultural aspects of funerary practices. Focusing on the Southeastern Baltic region, the presentation will examine the development of the cremation custom, including the factors influencing its spread and the ways it intersected with other funerary practices. It will also consider the

reasons why some individuals were buried in burial mounds, while others were buried outside of them. A key case study from the Mišeikiai mound cemetery in Lithuania, which features cremation burials outside barrows, will be highlighted to shed light on these practices. Investigations at this burial site were carried out in 2024 in order to test the area between the barrow mounds and to compare this material with a previously investigated barrow.

**411. FROM EARTH TO FIRE: FUNERARY RITUALS IN MEGALITHIC MONUMENTS IN CENTRAL ALENTEJO (PORTUGAL)**

**Contribution format:** Poster  
**Contribution authors:** Leonor Maria Pereira Rocha (CHAIA, Universidade de Évora) – Daniela Anselmo (CCDR Lisboa) – Paula Morgado (Câmara Municipal de Monforte, Portugal | CHAIA, Universidade de Évora)

All the details of prehistoric funerary rituals are important for understanding ancient societies - primary burial, secondary burial, with or without cremations. Understanding when cremation rituals began is essential, as it implies a new mentality towards death. In the case of Central Alentejo, where most of the megalithic graves were excavated in the first half of the 20th century, with stratigraphy recording methodologies that were not always (or almost never) very rigorous and often did not even collect osteological remains (human bones), this analysis is more difficult. Thus, the osteological analysis of bones, despite being crucial for understanding the evolutionary process of funerary contexts (with or without cremation), reconstructing biological profiles and assessing the conditions of cremation, may be completely lost for some regions. In this work, we intend to present the existing data for the Central Alentejo (Portugal) based on the research projects of the author, which focused on ancient works, but also to present data from more recent excavations, which have allowed us to clearly identify several monuments where cremations took place between the late Neolithic and the 1st Iron Age (5th century BC).

**16 ARCHAEOLOGY? GOOD GOD! WHAT IS IT GOOD FOR? (ABSOLUTELY NOTHING?)**

**Session theme:** 6. Intertwining archaeology, heritage, and museums  
**Session format:** Round table  
**Session keywords:** future, politics, application, public intellectual, significance of archaeology  
**Session organisers:** Thomas Meier (Heidelberg University) – Raimund Karl (University of Vienna) – Karin Reichenbach (Leibniz-Institut fuer Geschichte und Kultur des östlichen Europa)  
**Session speakers:** Alexander Gramsch (RGK - Romano-Germanic Commission DAI) – Owen Hurcum (University of York) – Ivana Mirković (IMT Scoula Alti Studi Lucca) – Hüseyin Burak Soy (Middle East Technical University) – Benjamin Vis (University of West Bohemia) – Ivana Živaljevic (University of Novi Sad)

**SESSION ABSTRACT**

As archaeologists – and as part of the humanities in general – we frequently claim the importance of our discipline for modern societies in terms of identity building, the exploration of alternatives to and the critical reflection of our present. As common as such claims are in discussions, publications and public talks, as abstract and vague our analyses, statements and recommendations remain. If the best we can do is to demonstrate that the bleedingly obvious did actually occur in the past, e.g. that societies either adapted to or collapsed due to climate change, are claims that we can contribute anything of significance to modern societies justified at all? In this round table, we want to ask: Is that all that archaeology has to offer to our societies? Don’t we have more and, above all, more precise and applied achievements of our discipline? What applied and applicable recommendations for action and understanding, what prognoses – if any – can we offer politicians, e.g. in areas of climate change and adaptation, migration, inequality, identity politics, defence of democracy, social cohesion, open societies, and many more? What do we really have to say in the face of grand societal challenges beyond the meta-level of abstract reflection? Do we have anything substantial to say and offer at all? And should we have something to offer – how should we do it? Address politicians directly? Reach out to think tanks? Become ‘public intellectuals’, commenting on current affairs in the media? Are the same approaches viable for all kinds of archaeology, academic, commercial, volunteer etc? And how to stay sober and credible while inevitably becoming part of one political camp or another? The organisers will strive for a diverse range of panelists in terms of gender and regionality. Interested to be a panelist? Contact us!



18 LEPENSKI VIR AND ITS WORLD: 60 YEARS ON

Session theme: 8. Along and across the Danube!  
Session format: Regular session  
Session keywords: Lepenski Vir, Mesolithic, Early Neolithic  
Session organisers: Dusan Boric (Sapienza University of Rome | New York University) – Clive Bonsall (University of Edinburgh)

SESSION ABSTRACT

The 1960s discovery of the site of Lepenski Vir and two dozen other broadly contemporaneous Epipalaeolithic, Mesolithic, and Neolithic sites in the Danube Gorges (Iron Gates) area between present-day Serbia and Romania opened up unprecedented insights about the diversity and richness of a pre-Neolithic world in southeastern Europe. Sixty years on, this area’s record of Early Holocene foragers and early farmers, as well as their interactions, still represents an exceptionally well preserved and documented case study. Moreover, the last three decades have seen applications of various methodologically advanced approaches in the study of the archaeological evidence from various sites in the region, including new fieldwork initiatives. The goal of this session is twofold. Firstly, we invite a dialogue about the current state of affairs from those researchers who have investigated first-hand various aspects of the evidence from this region, thus working towards a new synthesis of diverse strands of extant data. Secondly, we also welcome researchers working in other broadly contemporaneous and relevant case studies from the adjacent regions of southeastern Europe and beyond in an attempt to open up this case study to wider lateral and diachronic comparisons.

CONTRIBUTION ABSTRACTS

1221. THE MESOLITHIC AND EARLY NEOLITHIC OF THE DANUBE GORGES: A SYNTHESIS

Contribution format: Oral  
Contribution authors: Dusan Boric (Sapienza University of Rome | New York University)

The area of the Danube Gorges, with its wealth of archaeological evidence covering the transition from the last foragers to the first farmers, provides a rare opportunity to understand, at a high resolution of detail, processes involved in this major shift of lifeways. Sites found concentrated in this area offer evidence of a specific Early Holocene riparian adaptation. There are some notable traits: subsistence and ritual links between humans and different species of fish, a diversity and complexity of burial rites, a peculiar settlement organization, elaboration of unique architectural units linked to a specific landscape setting, distinctive body adornments, and extraordinary boulder artworks. The region also stands in stark contrast to the apparent lack of Mesolithic sites in the surrounding areas of the central Balkans. Recent applications of a suite of sophisticated bioarchaeological and other science-based approaches, which include multi-isotope studies in conjunction with radiocarbon dating, aDNA, analytical approaches to dental calculus and histology, lipid analyses on ceramics, geochemical provenancing of stone raw materials, and others, have significantly contributed to the creation of datasets that allow for increasingly nuanced interpretative accounts. This paper offers a review of the extant data in light of these recently obtained results. It also offers a perspective on the long-standing question of whether the Danube Gorges area represents an exceptional or paradigmatic case of adaptations and transformations of Mesolithic foragers in southeastern Europe.

497. HOW ISOTOPES HAVE TRANSFORMED OUR UNDERSTANDING OF IRON GATES PREHISTORY

Contribution format: Oral  
Contribution authors: Clive Bonsall (University of Edinburgh) – Adina Boroneant (Vasile Pârvan Institute of Archaeology, Bucharest) – Catriona Pickard (University of Edinburgh)

Isotopic analyses, which encompass stable isotopes and radiocarbon dating, have greatly enhanced our understanding of the Mesolithic and Neolithic periods in the Iron Gates. By integrating the results from stable isotope analyses and radiocarbon dating, researchers have gained valuable insights into the dietary habits of past populations, revealing nuances in food sources and consumption patterns that were previously obscure. These methods have also played a crucial role in refining and reshaping chronological frameworks, providing a more accurate timeline of historical events and developments. Moreover, when these isotopic findings are combined with ancient DNA evidence, they offer a more comprehensive picture of population dynamics, such as movements and interactions between different groups. This multidisciplinary approach has enriched our knowledge and challenged existing narratives about the Iron Gates region. The paper delves into these discoveries, highlighting the indispensable contributions of stable isotope research in advancing our understanding of the intricate prehistoric tapestry of the Iron Gates.

1352. REDRAWING THE PREHISTORIC CHRONOLOGY OF THE IRON GATES REGION

Contribution format: Oral  
Contribution authors: Adina Boroneant (Basile Pârva. Institute of Archaeology) – Corina Simion – Cristian Mănăilescu (Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering) – Oana Calancea (Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering | Vasile Pârvan Institute of Archaeology) – Maria Iliea – Alexandru Petre – Doru Păceșilă (Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering) – Adrian Bălășescu (Vasile Pârvan Institute of Archaeology) – Clive Bonsall (University of Edinburgh)

Over the past thirty years, significant progress has been made toward developing absolute chronologies for a select number of prominent archaeological sites in the Iron Gates section of the Danube Valley. For many other sites, however, stratigraphy remains the foundation for internal chronology. In this review, we discuss the results of a programme of AMS 14C dating of animal bones recovered from original excavations on the Romanian bank of the Danube—specifically, at Alibeg, Cuina Turcului, Climente I, Climente II, Ostrovul Banului, Schela Cladovei, Ostrovul Corbului, and Ostrovul Mare. Over fifty new AMS 14C dates are reported, with implications for local and regional chronologies within the Iron Gates region. The integration of new archaeological findings with previous data reveals discrepancies in the traditional chronology, creating a revised timeline that more accurately reflects human occupation and cultural development. By reassessing artefact typologies and settlement patterns, this research contributes to a more nuanced narrative of prehistoric human activity in the Iron Gates region. A significant part of the radiocarbon dating was supported under Research Programme Partnership in Priority Areas PNII MEN-UEFISCDI, contract PN 23210102 and PN 23210201. Experiments were carried out at the 1 MV Tandetron™ accelerator from “Horia Hulubei” National Institute for Physics and Nuclear Engineering (IFIN-HH) and were supported by the Romanian Government Programme through the National Programme for Infrastructure of National Interest (IOSIN).

1183. ENERGY USE AND FIREWOOD-RELATED PRACTICES AMONG PALEOLITHIC HUNTER-GATHERERS

Contribution format: Oral  
Contribution authors: Ethel Allué (Institut Català de Paleoecologia Humana i Evolució Social (IPHES-CERCA) | Universitat Rovira i Virgili (URV), Departament d’Història i Història de l’Art) – Andres Robledo (Institut Català de Paleoecologia Humana i Evolució Social (IPHES-CERCA) | Universitat Rovira i Virgili (URV), Departament d’Història i Història de l’Art | IDACOR, Museo de Antropología, Facultad de Filosofía y Humanidades, Universidad Nacional de Córdoba) – Tomás Fernández-Iriarte – Maria Joana Gabucio (Institut Català de Paleoecologia Humana i Evolució Social (IPHES-CERCA) | Universitat Rovira i Virgili (URV), Departament d’Història i Història de l’Art) – Noa Lachman (Institut Català de Paleoecologia Humana i Evolució Social (IPHES-CERCA) | Universitat Rovira i Virgili (URV), Departament d’Història i Història de l’Art | Museum National d’Histoire Naturelle, Paris) – Bàrbara Mas (Université Côte d’Azur, CNRS-UMR 7264 CEPAM | Seminari d’Estudis i Recerques Prehistòriques (SERP) Universitat de Barcelona) – Alba Vidal (Institut Català de Paleoecologia Humana i Evolució Social (IPHES-CERCA) | Universitat Rovira i Virgili (URV), Departament d’Història i Història de l’Art) – Llorenç Picornell-Gelabert (ArqueoUIB. Departament de Ciències Històriques i Teoria de les Arts, Universitat de les Illes Balear)

The objective of this communication is to present a new research project focused on studying past fuel use to better understand specific aspects of Paleolithic human behavioral patterns. This research integrates three key objectives: examining firewood selection patterns, investigating energy resources and mobility, and analyzing the living conditions of Paleolithic hunter-gatherer groups. The study covers archaeological sites spanning from Western Europe to Central Asia, incorporating diverse methodologies, including experimental archaeology and dendroanthracology. To achieve the objectives, we are analyzing high-resolution archaeological layers from two case studies in northeastern Iberia: Abric Romaní (Mousterian [Middle Paleolithic]), representing both short- and long-term occupations; Molí del Salt (Magdalenian [Late Upper Paleolithic]; and two sites in the Balkans (Vrbička Cave and Lepenski Vir), where Pinus sylvestris type constitutes 60% to 100% of the total charcoal assemblage. The application of dendroanthracology will help determine whether Pinus sylvestris type branches or trunks were indeed the primary wood-fuel source. It will also allow us to assess whether this practice was consistently maintained or if wood provisioning patterns changed over time and/or space due to social or environmental factors. Additionally, experimental research aims to recreate Paleolithic living conditions and analyze smoke and particle emissions within dwellings. The experimental protocols are designed to ensure replicability and consider



variables such as dwelling types, fuel selection (type, quantity, and quality), duration, and hearth types (braziers and flat hearths). Furthermore, different fuel types—including wood, bone, and grease—are being tested to evaluate their impact on living conditions and combustion structure functionality.

**2148. REVEALING LARGE-SCALE CULTURAL NETWORKS IN THE MESOLITHIC: STRONTIUM (87SR/86SR) ISOTOPE ANALYSIS OF RUTILUS FRISII PHARYNGEAL TEETH FROM SERBIA AND UKRAINE**

**Contribution format:** Oral  
**Contribution authors:** Ivana Živaljevic (Department of History, Faculty of Philosophy, University of Novi Sad) – Adam Boethius (Department of Archaeology and Ancient History, Lund University) – Dmytro Haskevych (Institute of Archaeology, National Academy of Science of Ukraine) – Lilia Popova (Schmalhausen Institute of Zoology, National Academy of Science of Ukraine) – Dušan Borić (Dipartimento di Biologia Ambientale, Sapienza Università di Roma | Department of Anthropology, New York University) – Dušan Mihailović (Department of Archaeology, Faculty of Philosophy, University of Belgrade)

The Late Mesolithic (c. late 8th and the 7th millennium cal BC) saw remarkable expressions of large-scale cultural networks, as evidenced by similar body adornment traditions flourishing in the Danube Gorges region in Serbia and the Dnipro Rapids region in Ukraine. In particular, a multitude of ornaments made from pharyngeal teeth of migratory cyprinid *Rutilus frisii* (vyrezub or pearlfish) has been found in a number of burials in both regions. Sporadic finds of such ornaments have also been reported in the Upper Danube region in Germany, in the Southern Balkans (Montenegro and south-eastern Serbia), and in the Crimean Peninsula in Ukraine, offering further insights into Mesolithic connectivity via riparian and land routes. Whereas the migratory *R. frisii* would have been readily available in most of these areas, seasonally moving to the Danube, the Dnipro, and Crimean rivers from the Black Sea, the contemporaneity and similarity of these practices cannot be seen as unrelated phenomena. In this paper, we present the results of strontium (87Sr/86Sr) isotope analysis by sequential laser ablations undertaken on a large sample of *R. frisii* teeth ornaments and unmodified teeth from Mesolithic sites in Serbia and Ukraine, as well as on archaeological and modern water vole (*Arvicola amphibius*) teeth from various river systems which served as local aquatic baselines. By establishing the local baselines, we aim to shed more light on the provenance of the fish, and the provenance and the routes of the fish teeth ornaments. We will also engage in the questions of local/non-local ornament production and acquisition, and look into the interregional correlations in 87Sr/86Sr isotope ratios as possible indicators of long distance exchange and the movement of people and decorative objects in the Mesolithic.

**1118. EARLY NEOLITHIC POTTERY IN THE DANUBE GORGES (IRON GATES) – PAST AND PRESENT APPROACHES**

**Contribution format:** Oral  
**Contribution authors:** Anca Georgescu – Adina Boroneanț (“Vasile Pârvan” Institute of Archaeology, Romanian Academy)

The works on the Danube riverbanks in Romania and Serbia carried out between the early 1960s and the 1980s, triggered by the construction of the hydroelectric power stations Iron Gates I and II, gave the opportunity for extensive archeological research on both banks, with a particular focus on the site locations that were to be flooded once the constructions of the two dams were completed. These changes opened the chapter of so-far 60 years of research on the archaeological materials found (lithics, faunal and botanical remains, pottery, etc). Initially, the Early Neolithic pottery recovered has been classified by type, paste, color, and decoration (mid1960s – mid-1980s). The shift in pottery analysis started in the 1990s and brought new insights into the function and utility of the vessels. Recent approaches to pottery analysis combine interdisciplinary studies (e.g., modern chemical and physical analysis on paste/pigment composition together with fresh 14C dates) to refine and widen our perception of the origin and development of patterns in ceramic production during the Early Neolithic period.

**936. FLEXIBLE PERSONS AND IDENTITIES: HUMAN AND ANIMAL MANIPULATIONS AT LEPENSKI VIR**

**Contribution format:** Oral  
**Contribution authors:** Jason Rasmussen (SUNY University at Buffalo)

The site of Lepenski Vir has been a phenomenal site over the past 60 years to test and evaluate new archaeological theories, methods and techniques as they came available over the decades. Its unique position along the Danube and Iron Gates created a Refugium allowing archaeologist to study complex interactions between the population and environment in detail previously thought impossible. This presentation seeks to demonstrate such complex interactions between humans and animals as seen in the burial record during the Mesolithic. Manipulations of multiple species alongside human beings’ physical bodies suggest that personhood and identity was highly

malleable in Iron Gates communities during this period as it transitioned into the Neolithic. These manipulations mix and match marine and terrestrial species alongside multiple sets of human remains giving us a view into complex prehistoric ideology. This presentation is based off of the forthcoming Doctorial dissertation by the author at SUNY University at Buffalo.

**218. MESOLITHIC AND EARLY NEOLITHIC OSSEOUS INDUSTRIES FROM OSTROVUL MARE (THE LOWER IRON GATES, ROMANIA)**

**Contribution format:** Poster  
**Contribution authors:** Monica Margarit (“Valahia” University of Targoviste) – Adina Boroneant (“Vasile Parvan” Institute of Archaeology, Romanian Academy)

The Mesolithic and Early Neolithic sites in the Iron Gates have yielded rich assemblages of osseous artefacts. Here we focus on the assemblages from Ostrovul Mare (km 873 and km 875). Our study identified four categories of osseous raw materials: antler (red deer), bone (large mammals), tooth (*Sus* sp.) and shell (*Testudo* sp. carapace). All raw materials could have been obtained locally, suggesting direct acquisition and in situ processing. The typological ranges are limited but comprise well-defined tool series. The most representative are the antler beveled tools and bone pointed tools. While the projectile points are indicative of hunting, the other items suggest domestic activities (cutting and debarking wood, perforating and cleaning hides, etc.). Of technological significance is the raw material differentiation of the blanks: volume blanks in the case of antler, and flat blanks in the case of bone. The osseous assemblages from Ostrovul Mare suggest both economic and technologic specialization. These assemblages fit well in the general pattern of the Mesolithic and Early Neolithic assemblages in the Iron Gates.

**19 INVESTIGATING FOOD STORAGE IN ARCHAEOLOGY THROUGH APPLIED NATURAL SCIENCE METHODS: PROXIES, METHODS AND THEORIES**

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** food storage, multi-proxy, multidisciplinary approaches, applied natural science,  
**Session organisers:** Valentina Tumolo (Università degli Studi della Tuscia, Viterbo) – Lisa Maher (University of California, Berkeley)  
**Session discussant:** Meriel McClatchie (University College Dublin)

**SESSION ABSTRACT**

Storing food has always been a basic need for sedentary and semi-nomadic people, and is a central topic in the current discourse around access to resources and food stability. Food stockpiling represents a risk management strategy aimed at reducing food loss due to unfavourable environmental and anthropic factors, but it is also a source of social power that is influenced by socio-economic conditions and, in turn, generates social changes, including the emergence and development of social inequality and hierarchy. Because of this, the decisions associated with food management are not just determined by maximisation of goals, but by a combination of ecological, technical, and social factors. The diverse material outcomes of the interaction of these multiple aspects on archaeological timescales can be investigated using a variety of approaches, and in the recent decades the central value of using applied natural science techniques, including micro-archaeological investigative methods, to define past storage practices has become evident. This session is aimed at researchers tackling the study of food storage evidence, targeting different proxies by using various approaches in applied natural sciences, including micro-archaeological techniques, and covering a range of temporal and spatial scales across different regions and time periods. The goal is to assess the state of the art in food storage study across research strands and to consider how the full range of natural science approaches has been integrated with traditional investigative methods to produce coherent interpretations with strong empirical support, and to reflect on future directions.

**CONTRIBUTION ABSTRACTS**

**601. PALYNOLOGY AS A WINDOW INTO FOOD STORAGE PRACTICES**

**Contribution format:** Oral  
**Contribution authors:** Renée Enevold (Moesgaard Museum)

Food has played a central role in the life of every person who has ever lived. However, because of its perishable nature, food remains can be hard to detect in the archaeological record. Palynology (pollen and non-pollen paly-nomorph (NPP) analysis) has the potential to reveal the contents of containers, storage facilities, pits, and more.



Microscopic fragments of animals or plants can be identified as palynomorphs, and their presence can be analysed and interpreted to aid the archaeological interpretation of a floor-layer, vessel or other storage contexts. This presentation will communicate unpublished case studies where palynology has substantially widened the framework for archaeological interpretation of past storage settings, alongside well-known published case studies. It highlights the utility of palynology for identifying past storage practices. The advantages of sampling the original, prehistoric dirt preserved both on and in artefacts, in cracks and crevasses of planks, ropes and textiles, as well as in graves and floor layers are highlighted. It is important to be creative, yet also very selective when sampling for palynological analysis, and a variety of closed contexts and artefacts with potential for application of the method is suggested.

**1910. HUNTER-GATHERER FOOD MANAGEMENT SYSTEMS IN PREHISTORIC SOUTHWEST ASIA: INSIGHTS FOR THE EMERGENCE OF FOOD PRODUCTION?**

**Contribution format:** Oral  
**Contribution authors:** Lisa Maher (University of California, Berkeley)

Microstratigraphic approaches to the prehistoric record allow us to better understand a ‘life history of place’ by providing insights into the nature of daily practices and activities often invisible at the macroscopic scale. Employing micro-stratigraphic, especially micromorphological, approaches alongside other traditional analyses of hut structures and associated food processing areas, pit features and hearths at a 20,000-year-old Epipalaeolithic site in Jordan provides a window into the life-history of the community by reconstructing the life-history of these features. Kharaneh IV’s large size and dense artefact deposits indicate that it was a hunter-gatherer aggregation locale during occupation and a focal point for regional interaction. Situated at the edge of an extinct wetland, we explore the life-history of the site’s features, especially those surrounding food management (including storage), to assess changes in the use of space over time and to provide a glimpse into the lives woven into and around these places as integral to the construction of hunter-gatherer communities.

**448. MICROSCOPIC INVESTIGATIONS OF AN EARLY THIRD MILLENNIUM BC STORAGE BUILDING AT THE KURDISH-IRAQI SITE OF BASSETKI**

**Contribution format:** Oral  
**Contribution authors:** Felicitas Ruschel (Durham University | Newcastle University | University of Tübingen) – Dan Lawrence (Durham University) – Lisa-Marie Shillito (Newcastle University) – Karen Milek – Graham Philip (Durham University) – Peter Pfälzner (University of Tübingen)

Ancient Mesopotamia is important for understanding the emergence of stratified societies, social inequality and, ultimately, large urban centres and states. Evidence from Northern Mesopotamian sites indicates an initial expansion of settlements and the development of centres in the late fourth millennium BC. This is followed by a period of stasis and in some areas decline, before a second urban florescence in the later third millennium BC. The socio-political organisation of settlements in this intermediate period is not well understood. Small villages along the plains and river valleys become common, with little attestation of social stratification. Many of these villages accommodate large scale storage facilities which have been interpreted as evidence for collective grain storage and processing. However, almost all of these facilities were completely emptied before abandonment, meaning no archaeobotanical or material culture remains are available to corroborate the theory. Nevertheless, the scale of these facilities suggests they were not only used to feed the local population but were either part of a political economy which involved transfers of food to regional centres or were used to bridge poor harvest years and compensate for crop failures. The opening up of fieldwork in Iraqi Kurdistan offers an opportunity to reinvestigate storage facilities in this period to investigate these two competing hypotheses. This paper analyses a recently excavated storage building dated to the early third millennium BC at the Kurdish-Iraqi site of Bassetki using a variety of different methods. It will focus on microscopic methods, especially thin-section micromorphology and phytolith analysis. The aim is to investigate the architecture, building techniques, maintenance and traces of in situ stored goods to evaluate the evidence for economic dependencies, specialisation and social differentiation. This contributes to a better understanding of society and economic strategies of settlements at that time and determine Bassetki’s role in this system.

**225. MICRO-ARCHAEOLOGICAL INVESTIGATIVE METHODS AND FOOD STORAGE SYSTEMS IN THE NORTHERN FERTILE CRESCENT DURING THE FIFTH, FOURTH, AND THIRD MILLENNIA BCE**

**Contribution format:** Oral  
**Contribution authors:** Valentina Tumolo (Università degli Studi della Tuscia)

During the fifth, fourth and third millennia BCE, complex societies emerged in the Northern Fertile Crescent (western inner Syria, southeastern Türkiye, and northern Iraq) including the world’s first cities and early states, and the storage of food staples was crucial to their development. Since food storage depended on the purposes

and social actors involved, and many other different natural and anthropic factors affected the tangible forms of stockpiling, the interpretation of the archaeological record is far from straightforward, and a direct and unequivocal association between the form of the facilities and their purpose cannot be made. This paper will present an international project focused on the investigation of food storage features from the aforementioned regions. This research includes the direct examination of stockpiling facilities from key archaeological sites in Türkiye and the Kurdistan Region of Iraq through a combination of macro-archaeological methods and micro-archaeological techniques, aimed at inferring the processes of building, use, maintenance, and possible secondary repurposing of structures, and the nature of the materials stored. Here we focus on the micromorphological and phytolith analyses, as well as the associated issues with using these methodologies.

**1775. STORAGE OF AGRICULTURAL RESOURCES DURING THE LATE MIDDLE BRONZE AGE AND EARLY LATE BRONZE AGE IN CENTRAL ANATOLIA, TÜRKİYE**

**Contribution format:** Oral  
**Contribution authors:** Doga Karakaya (University of Helsinki, Department of Cultures)

The Bronze Age political systems are believed to have evolved largely through an economic drive to control the production and redistribution of agricultural resources such as wine, olive oil, and staple crops. This control extended beyond household-level subsistence, as palatial authorities played an active role in agricultural production through a range of social and economic mechanisms, including rationing dependent farmers, mobilizing corvée labor, implementing storage systems, and managing irrigation to serve broader political and social objectives. Consequently, agriculture functioned not only as a means of sustenance but also of asserting and displaying political authority, reinforcing the integration of social relations within the Bronze Age societies. The Middle Bronze Age presents a particularly significant period for examining agricultural decision-making within ancient political systems, given the rise of internationalism in Southwest Asia. This era saw the consolidation of political power by Semitic Amorite kings and the expansion of long-distance trade networks linking Mesopotamia, Central Anatolia, the Levant, and Minoan Crete. This paper seeks to contextualize preliminary macrobotanical evidence for the storage of agricultural resources in three Central Anatolian settlements (Aşağıseyit Höyük, Tavşanlı Höyük and Konya-Karahöyük) that were contemporaneously occupied during the final phases of the Middle Bronze Age and the early Late Bronze Age. Each settlement, located across distinct climatic gradients, was buried following a single destruction event, preserving numerous intact storage vessels filled with staple crops in situ. The plant remains indicate a limited range of stored crops, primarily two-rowed barley and hulled wheats. By adopting a multi-settlement perspective, this study aims to identify key variables influencing the spatial organization of storage in Central Anatolian settlements. Additionally, it evaluates the role of local climate, crop production, and Middle Bronze Age political economies in shaping storage practices.

**1812. STORAGE PRACTICES IN THE LEVANT DURING THE BRONZE AND IRON AGES: AN ARCHAEOBOTANICAL PERSPECTIVE**

**Contribution format:** Oral  
**Contribution authors:** Eline Demeulenaere (University of Tübingen) – Simone Riehl (University of Tübingen | Senckenberg Centre for Human Evolution and Palaeoenvironment (SHEP)) – Jens Kamlah (University of Tübingen)

Agricultural endeavors have played a major role in the history of the Levant, with food storage being crucial for managing the risks of seasonal, environmental, and climatic challenges. The study of storage practices can shed light on the organization, surplus management, and socio-economic structures of ancient societies, playing a key role in urbanization and trade. While archaeological and archaeobotanical research has advanced our understanding of agricultural and storage practices in the Levant, a comprehensive synthesis of Bronze and Iron Age storage from an archaeobotanical perspective is still lacking. Archaeobotanical data, when remains are found in situ, can help determine whether a deposit represents intentional storage or other forms of accumulation, aiding in the identification of storage. This study examines Bronze and Iron Age storage in the Levant, synthesizing archaeobotanical data from 18 sites and integrating findings from 54 others to provide a comprehensive region-wide synthesis of storage practices. It explores differences between storage and non-storage contexts, regional and chronological variations in storage practices, socio-economic links, and environmental influences, with the goal of gaining a deeper understanding of storage practices in Bronze and Iron Age Levantine societies.



20 MATERIAL TRACES OF TOTALITARIAN AND DICTATORIAL REGIMES IN THE 20TH CENTURY HIDDEN PAST

Session theme: 2. Intertwined Epistemologies: Transcending the Data – Theory Divide  
Session format: Regular session  
Session keywords: Contemporary archaeology, Forensic archaeology, Materiality, Contemporary history, Digital humanities  
Session organisers: Laura Muñoz-Encinar (University of Barcelona | Institute of Heritage Sciences. Spanish National Research Council) – Dawid Kobiałka (University of Lodz) – Alejandro González Trejo (Institute of Heritage Sciences. Spanish National Research Council) – Lee Douglas (Goldsmiths University of London)  
Session discussant: Rafael Millán Pascual (Institute of Heritage Sciences INCIPIT CSIC)

SESSION ABSTRACT

During the last decade, archaeology has played a key role in the investigation of the repressive strategies of the 20th-century totalitarian and dictatorial regimes (Sturdy Colls 2015, Starzmann 2015; Theune 2018). The systematic use of forensic science –defined as the forensic turn– has also been essential, opening a new window of opportunity for identifying victims’ DNA and reconstructing the hidden past. Mass graves, concentration camps, labour camps and prisons have been archaeologically investigated, producing new narratives surrounding contemporary history. Advanced methods based on the interaction of archaeological and forensic sciences have revealed invisible traces of exclusion and annihilation in Europe and elsewhere (Theune, 2010; Sturdy Colls, 2015; Kola, 2000; Gilead et al., 2010; González-Ruibal, 2020; Muñoz-Encinar, 2019; Kobiałka et al, 2021). The systematic analysis of the sites by combining micro- and macro-methods of archaeological excavation with non-invasive, forensic archaeological methods have been essential. The focus on materiality, known as the material turn, has also been crucial to unearthing marginal stories from the hegemonic narratives of the recent past. The input of material studies has greatly advanced contemporary history and the production of historical knowledge. The overall objective of this session is to reflect on the relevance of archaeology in the study of the repression and violence used against specific political, gender and ethnic groups of society during the contemporary era. The session is open to contributions regarding theoretical, methodological, archaeometry, forensic and digital humanities studies. As such we invite contributions within the broader theme of the contemporary hidden past an. . . totalitarian and dictatorial regimes related but not limited to. Contemporary archaeology Forensic Archaeology Gender archaeology Materialities of perpetrators Other areas of research that contribute to conflict archaeology and multi-disciplinary approaches to understanding contemporary debates about violent pasts.

CONTRIBUTION ABSTRACTS

28. AN ARCHAEOLOGY OF MASS CRIMES – THE CASE OF DEATH VALLEY IN CHOJNICE, POLAND

Contribution format: Oral  
Contribution authors: Dawid Kobiałka (Insitute of Archaeology, University of Lodz) – Laura Muñoz-Encinar (University of Barcelona; Incipit CSIC) – Alfredo González-Ruibal (Incipit CSIC) – Joanna Rogóż – Michał Czarnik (Institute of Archaeology, University of Rzeszow) – Jakub Stępnik (Faculty of Archaeology, University of Warsaw) – Karol Woliński (Institute of Archaeology, University of Gdansk) – Bartosz Żarkowski – Paulina Przepiórka (Faculty of Archaeology, Adam Mickiewicz University) – Szymon Ważyński (Independent)

Since 2020, archaeological research and prosecutor’s investigation have been carried out regarding mass crimes committed by the Germans during the Second World War near Chojnice in Gdańsk Pomerania, Poland. In the autumn of 1939, representatives of the local intelligentsia, farmers, the mentally ill and disabled people, and members of the local Jewish community were murdered near the town. At the end of January 1945, the Germans murdered several hundred Poles in the surrounding fields, whose bodies were then burned to cover up the traces of the crime. As a result of the archaeological research carried out, the remains of approximately 700 people were found, over 6,000 pieces of evidence were secured and various types of samples were taken for specialised analyses. The aim of our paper is to outline the history of the place and the key role of methods, tools and archaeological approach that led to the discovery of the remains of victims that were to be hidden forever and the memory of them erased. In our paper, we will also emphasised the ethical and personal dimension of this type of archaeological work.

52. CAVE UNDER MACESNOVA GORICA – THE LARGEST EXCAVATION OF A POST SECOND WORLD WAR MASS GRAVE IN SLOVENIA

Contribution format: Oral  
Contribution authors: Uroš Košir (Avgusta, d. o. o.) – Luka Rozman (Luxor, d. o. o.)

The paper examines the results of extensive archaeological research conducted at the post-Second World War mass grave site known as the Cave under Macesnova gorica, or ‘Jama pod Macesnovo gorico’ in Slovenian, located in the remote and densely forested area of Kočevski Rog. This region is notorious for containing numerous concealed gravesites created during the chaotic months immediately following the conclusion of the Second World War. It was during this turbulent period that the Yugoslav Army systematically executed large numbers of political and military opponents. Since 2004, the area surrounding the execution site and the mass grave itself has been the focus of ongoing historical and archaeological investigations. Among these, the exhumation of human remains conducted in 2022 is particularly significant due to its scale and the insights it provided. The research uncovered the remains of approximately 3,450 murdered individuals, making it the largest of such archaeological exhumations in Slovenia to date. Furthermore, the use of metal detector survey, excavations at the execution site, and of the mass grave have led to the recovery of thousands of artifacts. These artifacts, which include personal items, military equipment, and other remnants, offer a poignant glimpse into the lives of the victims and the grim realities of the massacre. The evidence collected sheds new light on the tragic events of the immediate post-war period, revealing the systematic nature of the mass executions carried out against opponents of the communist-orientated national liberation movement and the newly established Yugoslavian regime. This study presents the findings from the most extensive archaeological excavations of war victims’ remains within Slovenia, highlighting the vital role archaeology plays in uncovering and understanding the poorly documented and violent episodes of the 20th century.

630. RECONSTRUCTING DEATH CIRCUMSTANCES IN ATYPICAL CASES OF SOVIET CAPITAL PUNISHMENT (1944–1947) IN LITHUANIA

Contribution format: Oral  
Contribution authors: Jovita Kadikinaite (Faculty of History, Vilnius University)

Between 1944 and 1947, individuals sentenced to death by NKGB-MGB were secretly buried at Tuskulėnai Manor (Vilnius, Lithuania). The majority of these individuals were resistance fighters engaged in anti-Soviet activities. Despite the site’s discovery and exhumations beginning in 1994, only 66 of 724 remains have been positively identified, and the investigation is still ongoing. While identification remains a priority, this research adopts a broader approach, reconstructing antemortem, perimortem, and postmortem events to better understand the treatment of prisoners, execution circumstances, and body disposal methods. Addressing these questions is of crucial importance for the provision of closure to families who have yet to receive answers regarding the deaths of their relatives. A central focus of this paper is the analysis of perimortem injuries to reconstruct the circumstances of death. Using forensic anthropological methods, this research enhances our understanding of two key aspects: the individual circumstances of each victim and the methods of the Soviet regime. Preliminary findings indicate that executions were not limited to a gunshot to the head; a number of victims also suffered atypical methods of execution, including perimortem blunt force trauma (blows and crushing) and sharp force trauma (stabbing and slashing). These findings challenge conventional narratives of execution practices, revealing a more complex and violent reality. By comparing forensic evidence with historical sources, this research sheds light on the victims, their deaths, and the actions of the executioners, offering a deeper understanding of Soviet-era crimes against humanity. Moreover, it uncovers details absent from written records, contributing to a more complete historical narrative.

343. SLANA CONCENTRATION CAMP: ARCHAEOLOGY OF THE SECOND WORLD WAR IN CROATIA

Contribution format: Oral  
Contribution authors: Sara Simões (UNIARQ - Centre for Archaeology, University of Lisbon) – Rui Gomes Coelho (Department of Archaeology, Durham University | UNIARQ - Centre for Archaeology, University of Lisbon) – Valerija Gligora (Independent) – Marin Maderić (Independent resercher) – Sanja Horvatinčić (Institute of Art History, Zagreb) – Iva Stojević (Independent resercher) – Ivona Grgurinović (University of Zagreb) – Angelina Stefanović (University of Belgrade, Faculty of Philosophy – Department of Archaeology) – Laia Gallego-Vila (Universidad Autònoma de Barcelona) – Igor Drvendžija (Archive of Serbs in Croatia, Serb National Council)

The death camp of Slana was established on the island of Pag in the summer of 1941 as one of the first and most brutal concentration camps in the Ustaše-controlled Independent State of Croatia. Ran by this Croatian fascist



movement during the Second World War, Slana was part of the Gospić - Jadovno - Pag concentrationary system. In less than three months of operation, thousands of political opponents and civilians were tortured and killed at the barren rocky landscape of the Slana cove, mainly due to their ethnic identity (such as Serbs and Jews). After the closure of the camp by the Italian military authorities for sanitary reasons, the corpses of victims were systematically burned. Even though Slana has been suffering a process of historical erasure since the 1990s, the former camp’s landscape and materialities keep revealing the atrocities that happened there. In 2022 and 2023, as part of the project Tracing Oblivion: The Ustaše Concentration Camps on the Island of Pag, Croatia, an interdisciplinary group of archaeologists, art historians and social anthropologists carried out fieldwork on the island. As part o. this research program, the team conducted a systematic archaeological survey of the camp. Through this project we seek to bring visibly to the atrocities that took place at Slana, re-assembling memories of the recent past and contributing to an ongoing debate on problems that affect contemporary Europe, such as the rise of the far right, neofascism, xenophobia or racism. In this paper we will present the preliminary results of the project.

477. LAYERS OF CONFINEMENT: WAR, RESISTANCE, AND DISPLACEMENT AT CAMP 65

**Contribution format:** Oral  
**Contribution authors:** Giuliano De Felice (Università di Bari ‘Aldo Moro’) – Maria Turchiano (Università di Foggia) – Sergio Chiaffarata – Daniele Mittica (Università di Bari ‘Aldo Moro’)

Camps of confinement—whether for prisoners of war, political detainees, or displaced persons—are defining features of 20th-century conflict landscapes. Since their origins in the 18th century, such sites have played a crucial role in controlling people worldwide during periods of war, colonial expansion, and political repression. In Italy, large-scale detention structures emerged in the 20th century, first with internment sites during the colonial wars and World War I and then widely expanding under Fascism into a vast network of internment, concentration, and POW camps during World War II. Camp 65, the largest POW camp in Fascist Italy, was built in 1940 in Apulia, in the country’s south and, between 1942 and 1943, housed over 20,000 allied prisoners, mostly captured in Africa, with a peak of around 9,000 at a time. However, its history did not end in 1943. Following the Italian armistice, it was repurposed as a training ground for Tito’s partisans (1943-1945) and, after the war, became a recovery center for Italian refugees (1955-1963). Since 2021, archaeological surveys and stratigraphical excavations have been reconstructing this complex history, revealing traces of daily life and survival strategies across all phases of the camp’s existence. Moreover, spatial analysis and surveys are helping to place Camp 65 within a broader and largely overlooked conflict landscape spanning from World War I to the Cold War and the Balkan conflicts of the 1990s. Beyond deepening knowledge of the camp, archaeology brings a new perspective to the narration of war, displacement, and resilience, adding value to an already lively and engaged international heritage community committed to memory and preservation. From a material standpoint, Camp 65 becomes a powerful case study of how tangible remains can help convey a message of memory, peace, and tolerance.

1526. REMAINS OF NAZI TYRANNY AS A SUBJECT OF ARCHAEOLOGICAL MONUMENT PRESERVATION – RECENT EXAMPLES FROM LOWER SAXONY, GERMANY

**Contribution format:** Oral  
**Contribution authors:** Henning Haßmann – Sebastian Messal (Lower Saxony State Service for Cultural Heritage)

The Nazi era is well documented by historical sources and eyewitnesses. Nevertheless, many traces can only be located and explained with archaeological methods. Archaeology also contributes new knowledge to historical research. Due to the enormous quantity, these relics are examined on a case-by-case basis. Forced labor, prisoner of war and concentration camps were mostly demolished after the war. They can be localized using photographs and maps, aerial archaeology, airborne laser scanning, geophysics and field surveys. Abandoned Jewish cemeteries, war graves and camps are protected monuments. Archaeological investigations are carried out to answer specific research questions or as part of international educational work, often to make remains that have been deliberately concealed visible. Explained excavations provide reference points that visitors to the memorial sites can use to find their orientation on the camp area. Excavated finds help to make this elusive place more tangible. However, the excavation of camp-era buildings also poses a major conservation problem. For this reason, the preservation of archaeological monuments is cautious about the desire often expressed by victims’ associations and local initiatives for complete excavation, because the moment it is uncovered, the building substance, which was usually created using rapid lightweight construction methods, is left to decay. Here, protection concepts must be developed that vary on a case-by-case basis between refilling the excavations, structural protection, roofing and translocation. In addition to the sites of tyranny, the focus of monument preservation and commemoration work is increasingly shifting to sites of Nazi mass rallies, as this is where the concept of the “Volksgemeinschaft” as the basis of the inhuman Nazi ideology can be understood. The outstanding testimonial and visual significance of selected relics is undisputed today. However, the educational work is in the hands of the commemoration institutions; archaeological heritage preservation can make an important contribution to this.

905. ADVANCING FIELDWORK METHODOLOGY IN FORENSIC ARCHAEOLOGY: LESSONS FROM THE DEATH VALLEY IN CHOJNICE, POLAND

**Contribution format:** Oral  
**Contribution authors:** Jakub Stepnik (University of Warsaw) – Michał Czarnik (University of Rzeszów)

During the 2024 excavation season in Death Valley near Chojnice, Poland, a mass grave containing the remains of approximately 160 victims of World War II war crimes was uncovered. The deceased were patients of a mental hospital in Chojnice, executed by Germans in 1939 and buried in narrow military trenches, resulting in a multi-layered, intertwined burial. In the talk, we present the excavation methodology, highlighting its advantages and challenges, as an example of the integration of modern documentation techniques during forensic exhumations. The excavation followed a traditional stratigraphic approach, involving the gradual uncovering of the grave along its length and the sequential extraction of individual remains, beginning with the most recently deposited victims. Each set of remains was assigned a unique inventory number, documented photographically in situ, and subsequently analyzed by an anthropologist. To enhance efficiency without compromising data accuracy, georeferenced photogrammetry models formed the basis of the documentation process, completely switching from hand drawings. As a result, each identified object, based on the analysis derived from the 3D models and precise GPS RTK measurements, is unequivocally assigned to a specific individual. This method, while adhering to strict field quality standards, facilitated the development of a detailed 3D database comprising 34 photogrammetric levels, enabling comprehensive post-excavation analysis in a digital environment. The ongoing development of the 3D database aims to not only visualize the scale of the crime but also reconstruct the sequence of events through detailed analyses of trauma, artifact locations, and victim positioning. This digital reconstruction seeks to create a precise virtual model of the burial serving as a resource for forensic archaeological research and education while preserving an already excavated crime scene. The use of this method will allow the scale of the crime to be revealed much more emphatically.

1484. MATERIALITY OF MARTYRDOM: OBJECTS, IDENTITY, AND POLITICS IN THE EXHUMED MASS GRAVES OF POSTWAR SPAIN

**Contribution format:** Oral  
**Contribution authors:** Miriam Saqqa-Carazo (Institute of Heritage Sciences (INCIPIT-CSIC))

More than 80 years have passed since the end of the Spanish Civil War and 50 years since the death of dictator Francisco Franco. However, the mass graves resulting from the war and the regime’s violence remain a crucial subject of historical and archaeological study. This presentation focuses attention, specifically, on the mass graves exhumed by the dictatorship after the war. Between 1939 and 1951, the Franco regime conducted a judicial process to locate and exhume mass graves. However, this effort was exclusively focused on those the dictatorship referred to as “martyrs and those fallen for God and Spain,” deliberately excluding the victims of its violence. Within this necropolitical framework, this paper seeks to examine the context and specific characteristics of these graves and their exhumation processes, while at the same time I will expose and explore the different materialities associated with the bodies of those whom the Franco regime considered ‘martyrs and fallen’. Through the interdisciplinary dissection of the judicial and forensic and through specific exhumation cases, I will outline the excavation methodologies, the typology and quantity of objects recovered from the exhumed mass graves, and their role in the forensic identification of the corpses. At the same time, beyond the objects themselves, we recognize that they, whether in archaeological or forensic contexts, not only define their bearers as individuals but also as members of a social group, class, or ethnic community. With this in mind, I will examine how the objects and clothing recovered from mass graves exhumed in post-war Spain provide insight into the social and political context embodied by this ‘martyred’ materiality.

1979. RECONSTRUCTING THE TRACES OF 20TH CENTURY VIOLENCE IN CATALONIA (SPAIN)

**Contribution format:** Oral  
**Contribution authors:** Queralt Solé Barjau (Universitat de Barcelona) – Laia Gallego-Vila (Universitat Autònoma de Barcelona)

Reconstructing the Traces of 20th Century Violence in Catalonia (Spain) Gallego-Vila, Laia Universitat Autònoma de Barcelona Solé, Queralt Univesritat de Barcelon. Violence during the Francoist Dictatorship took many forms, ranging from murder and confinement to the destruction of material living conditions. This violence permeated the construction of landscapes, architectures, spaces, and specific materials, which shaped the lives of people under this regime. This work proposes a synthesis and interpretation of various case studies in the Catalonia area from the perspective of the material traces of these violences. Different geographies across the territory will be addressed, which we understand represent examples of the different manifestations of violence in Catalonia. The journey will include the destruction of populations, abandonment and reconstruction (Corbera d’Ebre, Guardiola de Berguedà), the Francoist fortification of the Pyrenees Line (Alp), energy and industrial production under



Francoism and housing precariousness (Vallcebre, Barcelona, Flix), and the environment of guerrilla resistance (Guardiola de Berguedà).

2067. BEYOND THE FENCE: A COMPARATIVE ARCHAEOLOGY OF THE FRANCOIST CONCENTRATION CAMPS (DES-ALAMBRAR)

**Contribution format:** Oral  
**Contribution authors:** Laura Muñoz-Encinar – Alejandro González-Trejo (Institute of Heritage Sciences (INCIPIIT CSIC)) – David Alegre Lorenz (Autonomous University of Barcelona (UAB)) – Lee Douglas (Goldsmiths University of London) – Zahira Aragüete Toribio (Independent researcher) – Antonio Rodríguez-Hidalgo (Spanish National Research Council, Institute of Archaeology of Mérida (CSIC-Junta de Extremadura)) – Alvaro Falquina Aparicio – Alfredo González-Ruibal (Institute of Heritage Sciences (INCIPIIT CSIC))

In Spain, there were nearly two hundred concentration camps. The ‘rhetorical’ end of the civil war in April 1939 resulted in tens of thousands of prisoners being (re)integrated into the social fabric of the “New Spain”. From then on, thousands of inmates embarked on a journey which, in the best case, would take them to concentration camps, prisons, or forced labour camps. The diversity of spaces that the camps represent is substantially unknown, and its comparative study presents a potential source of historical knowledge. From April 1939, two different forms of violence were deployed against the subjugated enemy. On the one hand, the violence was channelled through institutional instruments. On the other, the mechanisms implemented against counterinsurgency movements were based on a wide range of brutal practices and massacres against civilians and combatants. The violence continued to spread also to civilians and daily life during the dictatorship until the transition to democracy (1975-1978). This paper outlines the results of the project DES-ALAMBRAR, which addresses the analysis of Francoist concentration camps from the study of the material culture left behind by the violence exerted on them. The results have provided new data about the complexity of Franco’s repressive apparatus and its organisation. The outcomes of the project reveal new aspects of the role played by violence as a form of social control as well as the extreme living conditions to which the inmates were subjected. Many of them were executed or died as a result of diseases derived from the hard living conditions inside the camps. Furthermore, it allows us to shed light on the specific violence applied to women, descendants of prisoners and other minority groups in society. Our results have allowed us to get closer to the traces of the past that remain in the present of Spanish society.

530. FINDING THE DEAD – SEARCH FOR THE VICTIMS OF 20TH CENTURY CONFLICTS IN SLOVENIA

**Contribution format:** Poster  
**Contribution authors:** Uroš Košir (Avgusta, d. o. o.)

Slovenia was the scene of different wars in the 20th century. The First and Second World Wars left numerous cemeteries and war graves scattered throughout the country. Many soldiers still lie unburied on former battlefields or are buried in unmarked graves. A particularly traumatic chapter in Slovenian history are the more than 700 so-called concealed graves from the Second World War and its aftermath. After the war, around 15,000 Slovenes and tens of thousands of members of the occupying forces, collaborators, and political opponents of the new communist regime were executed by the Yugoslav authorities. Slovenian archaeologists have been involved in the excavation of concealed gravesites since 2006. To date, more than 230 grave sites have been confirmed by trial excavations and over 7400 victims of war and post-war executions have been exhumed since 2006. In recent years, greater attention has been paid not only to the anthropological analysis of human remains, but also to archaeological data, such as the stratigraphy of burial sites, artefact spatial distributions and the analysis of artefacts found. These artefacts often reveal whether the victims were soldiers or civilians and to which military formations they belonged. In some cases, the discovered objects can even lead to the identification of the victims. Unfortunately, personal identification is rare in Slovenia, and only in isolated cases has identification been established by DNA analysis. Archaeological research on the victims of the First World War is much rarer, although such research has increased in recent years. In the largest study to date, 32 Italian soldiers who fell towards the end of the fighting on the Isonzo/Soča front were exhumed in 2022. Some earlier studies also focused on cemeteries and war graves in the hinterland of the front lines.

565. CONFLICT ARCHAEOLOGY AND MATERIAL MEMORY: INVESTIGATIONS ON TWO WWII SITES IN APULIA

**Contribution format:** Poster  
**Contribution authors:** Giuliano De Felice – Sergio Chiaffarata – Maria Nunzia Labarbuta – Daniele Mittica (Università di Bari ‘Aldo Moro’)

Modern Conflict Archaeology includes among its most important topics the study of twentieth-century

conflict-related contexts. In Italy, Apulia stands out in this field, with key sites like the American Pantanella Airfield in Canosa di Puglia and Campo PG 65 in Altamura. The Pantanella Airfield, built by the U.S. Army Corps of Engineers in 1944 near Canosa di Puglia, was part of the Foggia airfield complex, a network of over 30 Allied airfields established after the September 1943 landings in southern Italy. Spanning more than 20 square kilometers, some structures still preserve traces of decorations and features linked to the presence of American airmen. Aerial photographs, and documents from the Air Force Historical Research Agency, along with archaeological surveys and digital documentation of surviving remains buildings—have helped reconstruct its layout and identify the function of several buildings, including mass hall, theatre and chapel, and some decorations. The 2021 archaeological investigations at POW camp PG65 near Altamura (Bari, Italy) revealed its complex history beyond WWII. Built in 1940, it later served as a Yugoslav partisan training camp (1943) and a refugee center (1950s) before being mostly demolished in the late 20th century. The study of its remains traces these transformations and raises questions about its future conservation. An active local community, committed to preserving its memory, exemplifies the heritage communities envisioned by the Faro Convention, offering a model for integrating PG65 into a broader narrative of 20th-century history in the surrounding landscape. The archaeology of conflict goes beyond uncovering the material traces of war; it fosters dialogue, reflection, and reconciliation. By preserving and interpreting sites like Pantanella Airfield and PG65, we transform war-torn landscapes into spaces of peace, memory, and shared heritage.

21 THE SOCIAL LIFE OF CRAFTS(PEOPLE): EXPLORING THE INTERPLAY BETWEEN CRAFTS AND SOCIAL STRUCTURES AND NORMS IN 1ST MILLENNIUM BCE EUROPE

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** craftspeople, 1st millennium BCE, Europe, social context, norms and regulations  
**Session organisers:** Karina Groemer (Natural History Museum Vienna | HEAS Human Evolution and Archaeological Science, Vienna) – Matija Črešnar (University of Ljubljana) – Manuel Fernández-Götz (University of Oxford) – Francisco Gomes (UNIRQ - Centre for Archaeology of the University of Lisbon; School of Arts and Humanities)

SESSION ABSTRACT

Studies dealing with craft goods and activities have historically taken different approaches to the topic. Material-centred approaches have had particular currency in archaeological research, and they have been fostered by a growing focus on archaeometry. However, it has long been recognized that we also need other approaches that focus on the social and political contexts in which craft activities were embedded. Studies focusing on cross-craft interaction (CCI) (McGovern 1989; Brysbaert 2007; 2008) have proven particularly fruitful in exploring the social setting of craft activities, especially when combined with the more widespread approach to the chaîne opératoire. CCI approaches look at how different crafts interact in the physical and social space, allowing for a better understanding of the position of craft activities and craftspeople in social networks and, conversely, of the impact of social structures, rules, norms, and regulations in the organization of craft activities. This session explores the social framework of craft activities and their protagonists from a comparative, cross-craft perspective by looking at a range of crafts, including (but not limited to) textiles, pottery, metal, glass, and wood. We invite contributions that explore the social setting in which they took place and how they were organized in a spatial and social sense (Costin 1991), but especially the people behind the craft – the producers and also the consumers –, their identity, status, and role in society (Costin 1998). By bringing together perspectives from the study of multiple craft activities, we aim to foster the development of theoretical and methodological tools to better understand crafts and technology as socially embedded practices, as well as the social role and significance of crafts and craftspeople in 1st millennium BCE societies across Europe. The session thus hopes to ultimately highlight and explore the social mechanisms behind processes of technological innovation, development, and transmission.

CONTRIBUTION ABSTRACTS

2311. CRAFT CONNECTIONS IN ANCIENT CORINTH: EXPLORING CERAMIC-TEXTILE INTERACTIONS THROUGH LOOM WEIGHTS

**Contribution format:** Oral  
**Contribution authors:** Bela Dimova (University of Padua) – Carlotta Gardner – Noémi Müller – Vangelio Kiriatzis (Fitch Laboratory, British School at Athens)

Corinth was one of the great cities of the ancient Mediterranean, with a powerful economy and a vast trade



network. Corinthian pottery was exported widely, but Corinth also made less durable goods, such as textiles. Excavations at the city, led by the American School of Classical Studies at Athens, have uncovered over 1500 loom weights as well as other textile tools, which provide direct evidence for textile production from the 9th to the 1st century BC. An interdisciplinary project examined how the textile and ceramic industries and Corinth were organised and how they interacted through the case study of ceramic loom weights. In addition to studying the function, chronology, contexts, and technology of Corinthian textile tools, we examined how the marks on the loom weights (some of which are considered makers’ marks) relate to their ceramic fabrics through petrography and chemical analysis (WD-XRF). This work was part of a wider study of the textile economy of ancient Corinth and a re-examination of ceramic technology and clay resources in the north Peloponnese. The results show that Corinthian potters used different techniques to make loom weights over the course of the first millennium BC, with workshops going in and out of operation. Petrographic and chemical analysis found (surprisingly) no correspondence between clay paste recipes and makers’ marks, which opens up several possible scenarios for the chaîne opératoire and the potters’ choices.

**1354. ORIENTALISING POTTERY IN ETRURIA: ARCHAEOMETRIC INSIGHTS INTO GREEK INFLUENCE, TECHNOLOGICAL INNOVATION, AND CRAFT SPECIALISATION**

**Contribution format:** Oral  
**Contribution authors:** Maria Diakatou – Efraim Andreadakis (Archaeometry Research Group, Eberhard Karls University of Tübingen) – Lara Maritan (Department of Geosciences, University of Padova) – Lionello Morandi (Department of Civilisations and Forms of Knowledge, University of Pisa | Archaeometry Research Group, Eberhard Karls University of Tübingen) – Maria Taloni (Istituto di Scienze del Patrimonio Culturale - CNR) – Silvia Amicone (Archaeometry Research Group, Eberhard Karls University of Tübingen | Institute of Archaeology, University College London)

The early Orientalising period (late 8th to mid-7th century BCE) was a dynamic phase of sociocultural transformation across the Mediterranean, during which Etruria (central Italy) underwent significant internal changes and saw the emergence of city-states. Relationships with the Eastern Mediterranean escalated, leading to an influx of materials—both tangible and intangible—and to technological innovations, such as wheel-throwing, that facilitated new artistic developments. In particular, the Greek influence in the Etruscan pottery has been stressed the most, with the adaptation of Greek geometric motifs, vessel shapes, and the presence of Greek potters in Etruria. Despite considerable research into this topic, studies have predominantly focused on the typological aspects. However, direct scientific investigations into the underlying material culture—specifically local Etruscan ceramic technology, production organisation, and broader social implications—remain relatively limited. This study examines pottery production in Southern Etruria through archaeometric methods, providing insights into the structure and technology of local crafts associated with Orientalising pottery. By analysing pottery recipes, technological choices, pigment and material characteristics, this research aims to infer the technological niveau, assess the degree of the external stimuli, and explore the social dynamics. Comparative data across important Southern Etruscan sites, including Veio, Cerveteri, Tarquinia, and Vulci, were obtained through ceramic petrography and X-ray fluorescence analyses on 84 pottery samples, representative of Orientalising ceramics. Additional pigment analysis was performed on selected samples using micro-X-ray diffraction and Raman spectroscopy. Results indicate an unprecedented level of standardisation across the region, with evidence of inter-site circulation. The locally produced pottery attests to the technological advancements of Etruscan potters—wheel-throwing, more elaborate manufacturing and firing—their possible response to the Greek influence or other external stimuli. This new level of specialisation and organisational sophistication may partly result from knowledge transmission by Greek potters.

**1737. (A)CROSS THE ALPS: CROSS-CRAFT INTERACTION AND HYBRID CUSTOMS**

**Contribution format:** Oral  
**Contribution authors:** Claudio Negrini (Universität Wien – Institut für Alte Geschichte | Austrian Archaeological Institute of the Austrian Academy of Sciences) – Petra Amann (Universität Wien – Institut für Alte Geschichte)

This contribution presents a case study of cross-craft interaction (CCI) between Italy and Central Europe during the Iron Age. It focuses on bronze configured bow fibulae, sometimes with additional bone and amber inlays. These fibulae were particularly common among the Etruscans of the Po Valley and the ancient Veneti, but have also been found at sites north of the Alps. As part of the costume, the fibula can be considered a distinctive element. The adoption of a specific foreign fashion may therefore indicate the existence of a high-ranking clientele north of the Alps who wanted to adapt their costume to new models of exotic origin. The demand for these novel items was not entirely satisfied by the direct import of exotic goods, but saw the emergence of a local production, possibly facilitated by the transfer of specific craft skills. The bone and amber inlays found on bow fibulae

from sites north of the Alps are consistent with those found in Italy, but they are mounted on fibulae with shapes found in the central-eastern Alpine area, thus showing a hybrid character that is foreign to Italian specimens. This study suggests that these fibulae were made by craftsmen who combined imported decorative elements with objects of local provenance, thus creating a new type of fibula. This implies a remarkable organisation of craft activities, which relied on the import of raw materials and semi-finished products needed to produce locally the products demanded by part of the local community. This case study provides new evidence to further explore the close link between high-rank clients and the production process.

**1648. EVERY STEP OF THE WAY: AMBER WORKSHOPS ALONG THE AMBER ROADS**

**Contribution format:** Oral  
**Contribution authors:** Katja Hagemann (Friedrich-Alexander-University, Institute for Prehistory and Protohistory) – Miloslav Chytráček (Institute of Archaeology of the CAS, Prague) – Lukáš Kučera (Palacký University in Olomouc, Faculty of Science, Department of Analytical Chemistry) – Martin Golec (Palacký University in Olomouc, Faculty of Arts, Department of History, Section of Archaeology) – Zuzana Golec Mírová (Charles University in Prague, Faculty of Arts, Institute of Archaeology | Institute of Archaeology of the CAS, Prague) – Doris Mischka (Friedrich-Alexander-University, Institute for Prehistory and Protohistory) – Vojtěch Zemek (Palacký University in Olomouc, Faculty of Science, Department of Analytical Chemistry) – Jan Martínek (Palacký University in Olomouc, Faculty of Arts, Department of History, Section of Archaeology)

Since the beginning of amber research, the distribution of the raw material along the so-called amber roads has played a pivotal role to this field. Historically, the focus has been placed on specific scientific methods, such as infrared spectroscopy, which allow for the determination of ambers’ origin. Our project, “Amber Roads in the Early Iron Age in Central Europe,” funded by GAČR and DFG from 2023 to 2026, takes a multi-methodical and interdisciplinary approach to achieve a more comprehensive understanding of this fossil resin. We incorporate various methods, including infrared spectroscopy, Raman spectroscopy, and gas chromatography, which complement one another in their output and enable a more precise determination of ambers’ origin. In addition, archaeological and traceological investigations of amber findings have been conducted. The overarching goal of the project is to gain a better understanding of the provenance, distribution, and processing of amber during the Early Iron Age (Ha C – LT A). A significant gap in amber research has been the investigation of amber processing sites (workshops) in Central Europe. By examining the chaîne opératoire of amber and identifying the different phases of amber production, we aim to draw conclusions about these workshops in our project. These locations provide very important information concerning the distribution of raw material and finished products across Europe. Step by step, we seek to clarify the function of workshops along the trade routes and enhance our understanding of the dynamics of amber trade and production.

**1606. UNCOVERING THE “MISSING LINKS” IN IA GLASS BEAD NETWORKS: POSSIBILITIES AND LIMITATIONS**

**Contribution format:** Oral  
**Contribution authors:** Valentina Loncaric (HERCULES Laboratory, University of Évora | IN2PAST Associate Laboratory for Research and Innovation in Heritage | Dept. Earth and Environmental Sciences, KU Leuven) – Mafalda Costa (HERCULES Laboratory, University of Évora | IN2PAST Associate Laboratory for Research and Innovation in Heritage) – Patrick Degryse (Dept. Earth and Environmental Sciences, KU Leuven)

An overwhelming number of Iron Age glass artefacts found in Europe are beads from funerary contexts – deeply personal objects used to adorn bodies both in life and death. While intuitively recognized as luxury imports from the Eastern Mediterranean, the consumer-centered nature of their find contexts (when reliably known), reveals little about glass producers, beadmakers and traders. The issue is further complicated by the lack of direct evidence for primary glassmaking centers or bead workshops during the 1st millennium BCE. Archaeometric studies of glass composition, including trace elements and isotope ratios enable the mapping of glassmaking regions and basic understanding of raw material selection and glassmaking technology, but nuances like the number or size of workshops, their organization or the identities of glassmakers remain unknown. Even less evidence remains of beadmakers and traders. We only know they existed because their existence is integral to the existence of glass beads themselves. How can we approach cross-craft interactions embodied in glass beads when traditionally, research is focused either on the initial glass production or the final consumption practices? Can we attempt to identify beadmakers without direct evidence of a workshop? This paper explores how shifting to a transdisciplinary approach focused on cross-craft interactions can be leveraged to address the invisible craftspeople linked across the Mediterranean by glass beads in the 1st millennium BCE. While this opens new opportunities for



research, caution is necessary due to many methodological limitations.

2318. THE POWER OF TOOLS. IDENTITY AND PRAGMATISM OF THE CELTS ON THE DÜRRNBERG

Contribution format: Oral  
Contribution authors: Ronja Lau (Ruhr-University Bochum)

The settlement, the burial grounds and the Dürrnberg salt mine provide a unique insight into local textile production of Celtic people, from sheep to clothing. Mainly spindle whorls and loom weights from graves and the settlement provide evidence of a link between everyday life and status symbols. The cultural change from the Hallstatt period to the Latène period provides an opportunity to take a closer look at the changes in the working methods of the people on the Dürrnberg from 600-100 BC. Not only did local production techniques change, as can be seen from the spindle whorls, but trade routes and resources also influenced the craftsmen on the Dürrnberg in the Latène period. How is the change of a new culture reflected in craftsmanship, what is typical of the Hallstatt period and what is typical of the Latène period in a place where both can be found? In this paper, I will discuss how we can grasp a change in society on the basis of tools, resources, knowledge transfer and textiles using the extensive site of Dürrnberg near Hallein.

1368. SPECIALIZED CRAFTSMANSHIP IN THE SHADOW OF THE PRINCELY SEAT ON THE IPF? THE OHRENBURG SETTLEMENT IN THE SOUTHWESTERN NÖRDLINGER RIES

Contribution format: Oral  
Contribution authors: Jonathan Schmidt (Goethe-University Frankfurt)

The unfortified settlement at the Ohrenberg, located in southwestern Germany at the border of Baden-Württemberg and Bavaria in the Nördlinger Ries, has yielded a rich spectrum of finds from the late Hallstatt to the early and middle Latène periods. Intensive surveys and two excavation campaigns on its eastern slope have provided evidence for diverse craft activities, including bronze working (casting residues, semi-finished products and crucibles), iron working (slags), textile production (spindle whorls, loom weights), antler processing (semi-finished products) and, with some reservations, even glass processing (production waste). Imported artifacts – such as northern Italian pottery, a southeastern Alpine fibula, and numerous glass objects – suggest an elevated social status for the settlement. Through typochronological, technological, and geochemical analyses, this study examines the development of craft production at Ohrenberg and explores the factors behind the presence of objects traditionally associated with elites in an unfortified settlement. A key focus is the transition from Hallstatt to Latène bronze-working traditions, investigating how local production practices adapted to external stylistic and technological innovations. The presence of imported artifacts at the Ohrenberg settlement suggests a connection to the princely seat on the Ipf, located just 5 km southeast. With the fortified hillfort on the Goldberg (2 km south) and multiple ‘Rechteckhöfe’ and ‘Viereckschanzen’, several central sites from the late Hallstatt and Latène periods are situated in the immediate vicinity. By contextualizing the settlement and its craft production within this subregional framework, this study aims to explore the relationship between craftsmen and elites, the social status of artisans and the distribution networks of their products.

2310. FROM CRUCIBLES TO ARCHAEOLOGICAL LANDSCAPES: THE IMPORTANCE OF EARLY LA TÈNE METALWORKING FOR THE REGION OF SOUTH HESSE, GERMANY

Contribution format: Oral  
Contribution authors: Anna-Lena Jerg (University of Tübingen) – Roland Schwab (Leibniz-Zentrum für Archäologie)

This paper examines the archaeological site of “Groß-Rohrheim” (South Hesse, Germany), which, among other archaeological remains of different periods and about 180 slags, contains almost one hundred mostly well-preserved early La Tène crucibles. Herefore, it is the largest assemblage of early La Tène crucibles known for this period, which is particularly interesting, as the complex comes from a region, in which the Iron Age was usually perceived to be of lesser intensity than in neighbouring areas. However, recent research implies that the region must have been characterised by some sort of centralised settlement to which a workshop may have belonged. This impression is reinforced by the circumstance, that many crucibles seem to be of similar types. Furthermore, radiological examinations indicate, that several adhering metal residues are still preserved, which enables us to explore the questions of standardization, distribution, composition and quantity of the materials used, by applying radiography and computer tomography, light and scanning electron microscopy and energy dispersive X-Ray fluorescence (EDXRF). By reflecting on the current state of research for the wider geographical region and on early La Tène metalworking, we seek to adress not just the distribution and technological properties of the crucibles, but also hope to gain further insight into the underlying social structures and the wider archaeological landscape in which the complex is embedded and to understand the importance of metalworking for early La Tène societies of South Hesse.

2269. THE RISE OF THE LA TÈNE MIDDLE CLASS: HOW TRADE AND TECHNOLOGY FUELED LUXURY CONSUMPTION

Contribution format: Oral  
Contribution authors: Daniel Bursak – Alžběta Danielisová (Institute of Archaeology of the CAS, Prague) – Joëlle Rolland (CNRS, UMR 8215 Trajectoires)

One of the most visible archaeological transitions between early (5th–4th century BC) and middle–late (3rd–1st century BC) La Tène society is the changing nature of the production and distribution of personal objects. In early La Tène, costume parts shared stylistic elements interchangeable across vast regions, forming a kind of broad “La Tène identity”. Provenance of these otherwise homogeneous objects could only be distinguished through archaeometric analysis. By the 3rd century BC, however, elite demand grew for luxury objects made from rare materials or showcasing exceptional craftsmanship. These prestige items, limited in number, did not always align with local technological innovations, such as the emerging use of leaded bronze. However, these innovations fuelled large-scale production to meet the growing local demand for such prestige objects. Local craftsmen rapidly developed efficient production techniques, leading to standardised designs and structured raw material supply networks, often spanning long distances. As a consequence, this period saw the emergence of a new, self-confident La Tène society, where costume styles blended domestic and Mediterranean influences, forming a kind of new “popular culture”. The influx of raw materials created opportunities for individuals with access to long-distance trade, fostering a new elite whose status was based not only on traditional warrior aristocracy but also on commercial and political influence. These suppliers and producers laid the groundwork for later mass-scale production in the 2nd–1st century BC, making metal and glass jewellery even more accessible to wider group of consumers. Our paper explores how trade and technological advancements reshaped social identities and class dynamics. We examine the expansion of production, evolving distribution networks, and how once-exclusive elite goods became widely available, fostering new social distinctions in La Tène Europe.

617. CASTING LIGHT ON CAST METAL: PRODUCTION OF LOCAL AND NON-LOCAL TYPES OF COPPER-ALLOY ITEMS IN THE PRE-ROMAN IRON AGE SILESIA

Contribution format: Oral  
Contribution authors: Joanna Markiewicz (Univerzita Karlova) – Dawid Sych (University of Leicester)

While the middle and late La Tène period in central Europe was definitely the heyday of iron, mass-scale production of copper-alloy items also flourished. The study discusses a few selected artefacts recorded at the La Tène culture central site of Nowa Cerekwia. Those include fibulae, belt hooks, bracelets, production waste, and parts of the Kronenhalsring necklaces connected to the Jastorf tradition from the North European Plain. Many artefacts display traces of being cast in two-part moulds, most likely ceramic. Traces of metal grinding, hammering, drilling, drawing and bending are also visible. The presence of a series of non-La Tène copper-alloy artefacts, such as the Kronenhalsring hinge pins, raises questions about the transfer of skills, ideas, and movement of people among the artisans of the time. It is all the more intriguing, given that some of these items seem unfinished and bear production traces, such as casting seams, indicating they were made on the spot. In this way, the study also discusses social and cultural reproduction in ancient societies, highlighting the complex dynamics of cultural exchange and mobility during the Iron Age.

1370. FROM PRESS TO TABLE: SOCIOECONOMICAL VIEW OF THE IRON AGE WINEMAKING AND OIL-MAKING IN THE NORTHEAST OF THE IBERIAN PENINSULA

Contribution format: Oral  
Contribution authors: Antoni Corrales Soberino (Institut Català d’Arqueologia Clàssica (ICAC-CERCA))

The production of oil and wine during the Antiquity has been extensively studied by the archaeology and the historiography. In fact, in the northeast of the Iberian Peninsula (approximately the current limits of Catalonia), the investigation of these artisanal activities has been focused on the roman period. This is due to the importance of this region as a winemaking producer during the High Empire. The great spread of productive centres along the territory and their conservation allowed, consequently, their study. Despite that, the investigation of these activities during the Iron age is furtherly different. Until less than two decades, apart from few findings of elements in secondary position, the productive spaces were still unknown. Currently, with the recent discovery of many pressing installations and warehouses, not only the knowledge of these vegetal transformation activities has increased, but also the elaboration of new studies. At this point, we present the following contribution: a synthesis of all the Iron age winemaking and oil-making evidence in the northeast of the Iberian Peninsula (between Vth – IIInd centuries BC). The analysis of these activities will be ascendent: starting with the elements and the structures (presses, tanks and warehouses) and finishing with the comparation between Iberian territories. We will also treat factors as the pressing space, its place in the house and in the urban scheme, or the



type of settlement where these activities can be found. Through the comparison and discuss of the mentioned elements, it will be possible to obtain a socio-economical view. Specifically, not only it can be suggested many productive approaches, but also who could control these facilities and to whom were assigned the finished products. Therefore, it will be able to have a more complete understanding of the Iron age winemaking and oil-making in the northeast of the Iberian Peninsula.

496. CLAY FIGURINES, CRAFTS AND COMMUNITIES ON EASTERN IBERIA DURING THE IRON AGE

**Contribution format:** Oral  
**Contribution authors:** Mireia López-Bertran (Universitat de València) – Jaime Vives-Ferrándiz Sánchez (Museu de Prehistòria de València)

This paper examines how the craft practices involved in modeling terracotta figurines offer insights into historical dynamics related to various social issues, including technological processes, group and gender identity, and conceptions of the body. Specifically, we focus on human and animal terracotta figurines from eastern Iberia (modern-day País Valencià), dating from the 3rd to the 1st centuries BCE. In this context, we explore the manufacturing techniques of these clay figurines and how they construct communities with social bonds formed through the practice of modeling. Additionally, we discuss how structural variations in production processes are linked to the technological traditions of these groups, particularly in terms of modeling techniques, gestures, and symbolic elements. Iberian clay figurines are a valuable source of information for understanding the social contexts in which craft activities were practiced. The data presented here is part of the ongoing research project entitled TERRACOT: Clay Figurines and Communities in Eastern Iberia during the Iron Age (PID2023-150349NB-I00), funded by the Spanish Ministry of Science, Innovation, and Universities.

801. THE CRAFTY DEAD: WORKING TOOLS AND POSSIBLE ARTISANS IN GRAVES FROM THE IBERIAN SOUTHEAST (MURCIA, SPAIN), 4TH-2ND CENTURIES BCE

**Contribution format:** Oral  
**Contribution authors:** Pablo Harding – José Fenoll-Cascales (Universidad Autónoma de Madrid)

This paper explores the perception and role of artisanal work in Iberian society by focusing on a selection of graves containing tools used for working wood, stone, leather and pottery. These graves are found in the southeast of Spain, and date from the 4th to the 2nd centuries BCE. The symbolic and ritual nature of funerary contexts, in which every action and grave good is a result of a careful and pre-meditated decision, makes them ideal contexts for approaching identity at both a collective and individual scale, albeit with considerable caution. In this sense, the publication of the rich “Jeweller’s Grave” from the Cabezo Lucero necropolis (Uroz 2006) brought to bear the topic of the role and status of artisans in Iberian society. Opinions differ on whether working tools found in funerary contexts were used during the lives of the deceased or whether they were deposited as an indicator of a source of wealth. Nevertheless, the small number of such graves has brought the discussion to a standstill. The topic has continued to be overshadowed by studies focusing on other more frequent materials interpreted as identity markers, often gender-related, such as weaponry and textile implements. Recent research has provided more examples of this interesting minority than previously considered. Close analysis of the working implements themselves, associations between different tools, and their specialised uses in the chaîne opératoire, leads us to conclude that most of these tools would have been used for specialised tasks related to the final elaboration of the goods, and less so the extraction and initial preparation of raw materials. This evidence, in ritual spaces with a limited aristocratic access as were Iberian necropoleis, points to a high appreciation of the act of crafting by the Iberian elites, whether or not the deceased was an artisan.

472. WHO PULLED THE STRINGS? IRON AGE TEXTILE ACTIVITIES IN SOUTHERN PORTUGAL IN THEIR SOCIAL AND ECONOMIC CONTEXT

**Contribution format:** Oral  
**Contribution authors:** Francisco Gomes (UNIAHQ - Centre for Archaeology of the University of Lisbon | School of Arts and Humanities of the University of Lisbon)

In recent years, our understanding of textile production during the Southern Portuguese Iron Age (8th/ 7th – 2nd centuries BCE) has advanced considerably, despite a persistent dearth of good quality data. Insights can now be garnered on the technological features of this production, and even on its scale and general context. However, many questions remain regarding the organization of production and, most critically, the identity of the craftspeople themselves. The information regarding possible textile production spaces remains scarce, but evidence seems to suggest a pre-eminence of household production, which is difficult to characterise in detail due to the scarcity of good analyses of domestic spaces. A growing body of data suggests that a parallel production on a larger scale in sanctuaries also took place, but information on its organization remains limited. The fragmentary evidence from the funerary record offers insights into the agents of this production, pointing (albeit in a tentative

way) to an association between textile production and women, and potentially women of a certain status within their communities. A key question that remains to be answered is how this textile production fits into the overall productive fabric of regional Iron Age societies. This presentation will explore this topic, comparing what we know about the context and scale of textile production with the available panorama for pottery and metallurgical production. It will be argued that, in the wake of the transformation of economic systems fostered by the Phoenician presence, there are key differences regarding the organization of these activities, which may map onto gendered roles within the community and an integration between household and workshop production as part of complex economic systems. The implications of this situation for the social status and standing of textile crafts and their practitioners will be discussed as a corollary to this analysis.

1617. TRACING THE SOCIAL LIVES OF IRON AGE CRAFTSPEOPLE BY ADDRESSING THE STUDY OF PLANT-BASED CRAFTS: CASE STUDIES FROM NORTHERN IBERIA

**Contribution format:** Oral  
**Contribution authors:** Maria Martin Seijo (Institute of Heritage Sciences (INCIPIT-CSIC), Santiago de Compostela)

During the Iron Age, plants constituted the primary source of raw materials for crafting, with a wide range of objects being made (e.g. cords, nets, baskets, wooden containers, handles and even statues), structures being built (e.g. buildings, thatching roofs, wattle fencing, trackway structures) and even means of transport being constructed (e.g. log boats, carts). The importance of wood crafting and other plant-based artefacts in relation to metalworking should be given due consideration and discussion in the context of archaeological research. The reason for this is that plant materials and metals are closely intertwined. A wide array of tool types and forms – adzes, saws, chisels and gouges, and various types of specialised axes – were developed for wood crafting, and two of the main technological innovations of woodworking – turning and cooperage – were developed in late European prehistory, probably somewhere around the latter half of the 2nd millennium BCE. Both tools and techniques reflect an increasing complexity in working with plant materials, suggesting the acquisition of exceptional biomechanical skills and the development of bodily relationships with tools through cross-generational craft memory and experience passed down from master to apprentice. This also indicates the existence of specialised workshops and the potential for the emergence of specialised craftspeople. Even those craftworks often considered as related to the domestic sphere require specific and long processes of learning to acquire a deep knowledge of plants and their lifecycle, as well as specialised skills for tending and managing trees, shrubs and herbs to obtain adequate raw materials. The social lives of Iron Age craftspeople involved in the crafting of plant materials will be addressed by several case studies from Northern Iberia. These will be based on direct archaeological evidence, as well as other forms of evidence of cross-craft interaction.

1163. FIRST APPROACH TO THE DEPOSITS OF MUREX (STRAMONITA HAEMASTOMA) FOUND IN THE RAMPART AREA OF CAMPA TORRES HILLFORT (GIJÓN, ASTURIAS)

**Contribution format:** Oral  
**Contribution authors:** Fernando Rodríguez Del Cueto (University of Oviedo) – Almudena Orejas Saco Del Valle (CSIC) – Rubén Montes López – Paloma García Díaz (Archaeological Museums of Gijón) – Elena Lastra Alonso (University of Oviedo)

The Campa Torres hillfort was dug between 1978 and 2000, as part of the research in Iron Age societies of the prehistorian Jose Luis Maya. Two main areas involved this research: first, the hilltop. Probably the oldest area where the only preserved ditch, next to a complex network of modular walls cut the connection of the Cape Torres with the mainland. The old excavations indicate an important occupation since (at least) the VI century BC and till the Roman times. Second, the plain area where Roman buidings live together with other structures. Although the main occupation lead us to different Roman phases, the first uses of the plain started around the Second Iron Age (IV century BC). Several small papers and a book were the only archaeological information available due to the tragic loss of Maya. Now, a new phase of the project just started divided in 5 steps: since 2021 we carried out a database of the archaeological materials with around 20.000 registers (phase I). The conservation of the plain remains (phase II), affected by continuous floodings till 2023. Phase III implies the research and conservation of the rampart area. Here, in various zones near the deffensive walls, at least 127 kilogrammes of murex (stramonita haemastoma) corresponding to a mininum of 10.460 elements were recovered in the old excavations. New radio-carbon data indicates that we are moving in a time lapse between the II century BC and the end of first century BC. The acquirement and processing of enormous ammounts of murex was surely an important effort for the protohistoric communities of Campa Torres. Our contribution will summarize the main features of these activities as well as some considerations about the social repercussions in the inhabitants of the hillfort, based on the data gathered in the new research.



1456. MULTIFUNCTIONAL AND COOPERATIVE WORKING-SPACES IN EARLY IRON AGE ARTISANAL SITE OF “QUESTURA” (PADUA, ITALY). DATA FROM MICROSTRATIGRAPHIC EXCAVATION

Contribution format: Poster  
Contribution authors: Vanessa Baratella (University of Padua | University of Ljubljana)

The center of Padua (Veneto region, Italy) was born and developed during the 8th century BC, in the context of the proto-urbanization phenomenon that involved the entire Veneto territory between Early Iron Age 1 and Early Iron Age 2. In the heart of the modern center of Padua, at the Police Headquarters (i.e., “Questura”), a significant part of a site with both productive and residential functions was investigated between 2000 and 2001. In this context, several production workshops were identified: a ceramic workshop, an area for the production of building materials, and a foundry for producing bronze artifacts; all these production areas operated in synergy. Twenty years later, thanks to a microstratigraphic excavation conducted in 2022 by the University of Padua on a portion of stratigraphy that had been removed from the foundry in 2000 and had not yet been excavated until now, it was possible to recognize how different productive activities (bronze working, deer antler processing, and woodworking) coexisted in this specific space, and consequently, different artisans and technological know-how live together. The entire complex was then subjected to a detailed analysis that provided new data on the management and organization of artisanal spaces in Early Iron Age Padua. Moreover, thanks to an interdisciplinary approach that combined archaeological data with archaeozoological and archaeobotanical data, it was also possible to analyze in detail the interaction between artisans and their workspace.

22 SHAPED MARGINS: MORPHOLOGICAL AND ENVIRONMENTAL EVOLUTION OF COASTAL AREAS IN LONG-INHABITED URBAN SPACES

Session theme: 5. Finding the way! Archaeological sciences and opening new research perspectives  
Session format: Regular session  
Session keywords: Geoarchaeology, Paleoenvironments, Environmental proxies, Coastline, Anthropogenic influence  
Session organisers: Ana Maria Costa (Laboratório de Arqueociências (LARC) | Património Cultural, IP) – Matthieu Giaime (Archéologie des Sociétés Méditerranéennes UMR5140, Université Montpellier 3, CNRS)  
Session discussant: Maria Conceição Freitas (University of Lisbon, IDL - Instituto Dom Luiz)

SESSION ABSTRACT

Due to the general attraction of people to the sea, coastal areas were occupied since prehistory, progressively becoming important urban centers hosting large number of inhabitants. Concentration of populations along the coastal margins led to an artificialization of the milieu through time mostly due to i) dump deposits on the marginal environments (beach and marshes); ii) the edification of structures such as front walls, defensive walls, docks and port structures on the coast; iii) the construction of anthropic landfills on the coastal environments, among other anthropogenic actions. These human impacts modified the natural environmental conditions on the coastal area. They could lead to the advance of the coastline (beach, dune, marshes, low subtidal environments) or to the regression or disappearance of coastal environments. In this sense, this session aims to present and discuss research concerning morphological and environmental changes of coastal areas through time, with a focus on areas located near long-inhabited cities that are prone to anthropogenic actions over a long period of time.

CONTRIBUTION ABSTRACTS

359. PALEOENVIRONMENTAL STUDY OF THE TAGUS ESTUARINE MARGIN (LISBON, PORTUGAL) - PRELIMINARY RESULTS OBTAINED FROM A SEDIMENT CORE COLLECTED IN SANTOS

Contribution format: Oral  
Contribution authors: Margarida Silva (Laboratório de Arqueociências PC, IP | Departamento de Geologia, Faculdade de Ciências, Universidade de Lisboa | Instituto Estudos Medievais NOVA) – Ana Costa (Laboratório de Arqueociências PC, IP | BIOPOLIS | InBIO | CIBIO | IDL - Instituto Dom Luiz; Universidade de Lisboa) – André Albuquerque (Império Arqueologia Lda) – Nuno Neto (Neópica, Lda – Arqueologia e Património) – Nuno Pires (Empatia – Arqueologia, Conservação e Restauro, Lda) – Maria Freitas (Departamento de Geologia, Faculdade de Ciências, Universidade de Lisboa | IDL - Instituto Dom Luiz; Universidade de Lisboa)

This paper discusses the preliminary results from the multiproxy analyses (sediment texture, organic chemistry, organic matter and calcium carbonate content) of a sediment core (Metro Santos) collected during a salvage archaeological intervention in the former Boavista Bay, where a subway station is under construction. The Boavista Bay, located between Cais do Sodré and Santos (Lisbon), lies on the estuarine margin of the Tagus, and once comprised ancient beaches, intertidal and subtidal environments. The core was collected c.175 m south of Rua da Boavista, considered as the pre-occupation coastline (assuming the high tide line). The area has been documented as a major site of human activity, especially for port and commercial purposes, throughout the Roman, Modern and Contemporary periods, until the construction of the Boavista landfill in the 19th century, that covered these marginal environments. Multiproxy data from previous sediment cores (EDP1 and Essentia, both located c. 200 m south of the Rua da Boavista and c. 200 m east of Metro Santos) obtained in other interventions in the same area, indicate sedimentation occurring in subtidal to intertidal conditions in a low-energy environment and the transition to sediments rich in anthropic debris topwards, covering the last 3000 years as suggested by the preliminary 14C dating results. Our objective is to compare and correlate these results with the information obtained from the Metro Santos core i) searching for a better understanding of geomorphological evolution of the bay; ii) aiming to reconstruct the paleoenvironmental conditions of this estuarine margin over time, and iii) disentangling the anthropic influence from the natural processes responsible for the identified changes. This work is supported by the Portuguese Fundação para a Ciência e Tecnologia, FCT, I.P./MCTES through the PhD grant PRT/BD/155050/2023 and national funds (PIDDAC): UID/50019/2025 and LA/P/0068/2020 (<https://doi.org/10.54499/LA/P/0068/2020>).

1959. ENVIRONMENTAL FACTOR IN THE DECLINE OF LATE ANTIQUE URBANISM: A COMPARATIVE STUDY ON HISTRIA AND EPHEBUS

Contribution format: Oral  
Contribution authors: Sercan Batum (Humboldt-Universität zu Berlin | Middle East Technical University)

This paper aims to analyze the environmental impact on Histria and Ephesus in Late Antiquity. Though both of the coastal cities, Histria and Ephesus, are in different geographies (Scythia Minor/Western Black Sea and Western Anatolia, respectively), changes in their coastal environment led to their decline at the end of Late Antiquity ca. 6-7th centuries AD. Thus, this similarity deserves a comparative study and scrutiny. Both Histria and Ephesus were subjected to environmental and political challenges during Late Antiquity. This paper emphasizes the environmental aspect of the decline: In light of recent data, this work hypothesizes that both cities lost their maritime vocation, becoming landlocked cities due to geomorphological transformation of their coastal environment e.g. sedimentation and coastal progradation. Cross comparison of both sedimentary records is to highlight the response and resilience of the two cities. Though urban life in Ephesus could survive through urban reconfigurations in the Medieval Period, it ceased to exist in Histria. In addition to a comparison between the two cities, the paper aims to highlight how the environment affected their urban nature, including urban topography, social-cultural settings, and economic structure. This is done with an interdisciplinary approach that combines different disciplines such as archaeology, history, and geology.

1164. LINKING ALEXANDRIA TO THE NILE: GEOARCHAEOLOGICAL INVESTIGATIONS TO LOCATE THE ANCIENT BURIED CANAL(S)

Contribution format: Oral  
Contribution authors: Matthieu Giaime (Université Montpellier Paul-Valéry, UMR 5140 Archéologie des Sociétés Méditerranéennes) – Isabelle Hairy (UMR 8167 Orient & Méditerranée | UAR 3134 CeAlex, Egypt) – Mena El-Assal (King Khalid University, Saudia Arabia) – Hany Salah – Mohamed Al Deep – Mahfooz Hafez – Wael Ragab – Mamdouh Soliman (National Research Institute of Astronomy and Geophysics, Egypt)

Alexandria, second largest city of Egypt, was founded by Alexander the Great in the winter of 332-331 BCE on the western coast of the Nile delta. The coastline on which Alexandria was built was bordered by the island of Pharos, defining a long bay between the capes of Agami to the west and Silsileh to the east. Between the two ends of the island and the capes, the eastern and western approaches were protected by reefs. The Alexandrian sandstone has deep fissures where water flows freely and at high speed, making it similar to a karst aquifer. This reservoir could possibly contain ca. 200 liters per cubic meter of sandstone. The first wells, drawing water from the aquifer, were sufficiently important to provide water for the earlier inhabitants of Alexandria. However, few decades after the foundation of the city, Ptolemy 1st orders the digging of a canal to connect Alexandria to the Nile. The construction of the canal(s) responded to a political and religious objective. From a religious perspective, linking the city to the Nile made it fully Egyptian. It has also a practical and economical aspect, the water supply of Alexandria and the navigation between Alexandria and the Nile. Here we present preliminary results of Electrical Resistivity Tomography and geomorphological coring aiming at locating the canal and its outlet into the Mediterranean, the Kibotos basin, that were mentioned by Strabo during its visit of the city at the turn



of the Christian era.

1863. FLOODING THE CITY: A MULTIDISCIPLINARY APPROACH TO ANTHROPOGENIC ACTIONS RELATED TO FLOODS IN MEDIEVAL ISLAMIC LISBON (TAGUS ESTUARY, PORTUGAL)

**Contribution format:** Oral  
**Contribution authors:** Victor Filipe (UNIARQ- Centre for Archaeology, University of Lisbon | Torres Novas City Council) – Manuel Fialho (GEO - CML: Gabinete de Estudos Olisiponenses, Lisbon City Council | CH-ULisboa: Centre for History, University of Lisbon | UNIARQ- Centre for Archaeology, School of Arts and Humanities, University of Lisbon) – Luís Almeida (DGEG- Directorate General for Energy and Geology | UNIARQ- Centre for Archaeology, School of Arts and Humanities, University of Lisbon | HERCULES Laboratory - University of Évora)

Archaeological excavations in Hotel de Santa Justa, in Lisbon’s downtown, uncovered an 11th-century Islamic neighbourhood alongside Esteiro da Baixa, a subsidiary creek of the Tagus Estuary. This area is set in a flattened valley embedded in Miocene formation and infilled after sea-level rise deceleration around 7000 cal. years BP. The estuarine margins were then reworked in sediment-accumulating estuarine areas like Esteiro da Baixa. Since the Iron Age, human activity influenced sedimentary dynamics, erosion, and infilling processes, reflecting the long diachrony of occupation of the city. Although we don’t know much about Islamic Lisbon’s history, Archaeology has been revealing a vibrant and active urban centre. The city, located in the riverside of the Tagus Estuary mouth, was structured in different areas, with a western suburb very much prone to floods coming both from the Tagus and from its subsidiary creeks that crossed the downtown. The urban growth that took place in the 10th and 11th centuries faced an important challenge to domesticate the creek to allow the building of houses in previous peri-urban rural areas. Floods were common in the period, and there are historical accounts of riverside floods elsewhere in Al-Andalus that caused forceful actions by the Islamic authorities, which allow us to draw parallels based on the archaeological and geoarchaeological evidence presented in the site of Hotel de Santa Justa. The archaeological excavation, made in 2011, revealed some structures that may be connected to anthropogenic actions related to the water presence very close to these houses of Lisbon’s western suburb. Our revisit to this archaeological site follows an approach which combines Archaeology, Geoarchaeology and History to allow us to understand the anthropogenic actions made by Lisbon’s inhabitants in a specific place of Islamic Lisbon’s western suburb trying to control the course of nature in a very exposed coastal area.

2138. EVIDENCE OF ANTHROPIC MODIFICATIONS ALONG THE LISBON ESTUARINE MARGIN IN THE DOCUMENTARY RECORD, INCLUDING PHOTOGRAPHS, MAPS, AND WRITTEN DOCUMENTS

**Contribution format:** Oral  
**Contribution authors:** Ana Maria Costa (Laboratório de Arqueociências (LARC) | Património Cultural, IP | Associação BIOPOLIS-InBIO | IDL - Instituto Dom Luiz, Universidade de Lisboa | UNIARQ - Centro de Arqueologia da Universidade de Lisboa) – Margarida Silva (Laboratório de Arqueociências (LARC) | Património Cultural, IP | IDL - Instituto Dom Luiz, Universidade de Lisboa) – Maria Da Conceição Freitas (IDL - Instituto Dom Luiz, Universidade de Lisboa)

Estuaries are transitional zones between fluvial and marine environments that often provide space, shelter, and abundant natural resources for human populations. Lisbon, the capital and largest city of Portugal, is located on the right bank of the Tagus estuary, one of the larger estuaries in the Iberian Peninsula. The city has a long history of human occupation. The city center was established during the Iron Age, the earliest anthropic structures dating from the 5th to 3rd centuries BCE. Since then, there has been anthropic manipulation of the estuarine margins, both for the Tagus and its tributaries, although human influence along the margins intensified mainly during the Middle Ages. In addition to data derived from sedimentary and archaeological records, historical cartography (since the 16th century), old photographs (from the 19th century onwards), and written documents also provide key evidence of anthropic changes. These sources contribute to reconstructing the morphologies and environments of the Tagus estuarine margin in different periods. In this study, we present the results of an interdisciplinary investigation aimed to reconstruct the evolution and morphology of the northern Tagus estuarine coastline in Lisbon, mainly based on historical images and written documents. Old cartographic maps helped to estimate the extent of the coastline, which has been buried beneath deliberate landfills built at least from the 16th century onward. Historical photographs reveal Lisbon as a city of beaches rather than buildings. Written documents provide evidence of salt marshes at the mouths of some Tagus tributaries that once crossed the city. These are just some examples, and the findings, along with additional examples, offer valuable insights into the transformation of the Lisbon estuarine margin over time.

23 TAMING THE BALKANS: RIVER VALLEYS AS COMMUNICATION SYSTEM FOR THE EARLY FARMERS SETTLING THE BALKAN HINTERLANDS

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** Balkan hinterlands, river system, spread of farming, settlement strategies, economic strategies  
**Session organisers:** Darko Stojanovski (Austrian Archaeological Institute, Austrian Academy of Sciences | Goce Delchev University) – Slaviša Perić (Institute of Archaeology, Belgrade) – Krum Bacvarov (National Institute of Archaeology & Museum, Bulgarian Academy of Sciences) – Barbara Horejs (Austrian Archaeological Institute, Austrian Academy of Sciences | HEAS and UHA, University of Vienna)

SESSION ABSTRACT

The Balkan hinterlands played a crucial role during the transition of the Neolithic communities from the warm Mediterranean towards temperate Central Europe. It was an arena where people had to adapt their practices to the changing environments and adopt new ones. Exploring the landscape was an initial step in that direction. In the rugged Balkan terrains, the rivers facilitated movement, navigation, and further expansion into the new lands. The role of rivers in the dispersal of the early farming communities has been explored in the past, in the general context of the Neolithization process between the Near East and Europe. The Vardar/Morava and the Struma valleys have been recognized as the two most important corridors connecting the Aegean Sea and the Danube, and Maritsa River has increasingly been emphasized by recent research. To better understand the process, a (micro-) regional approach is necessary. With the latest international multidisciplinary collaborations and intensification of fieldwork in the Balkans, a higher resolution assessment is possible, and we believe it is the right time to revisit the topic. The session is open for different methodologies and approaches, focusing on the settlement and adaptation strategies of the early farmers in the micro regions along the riverine valleys of the diverse Balkan landscape between the Aegean and the Danube. Topics may include, but are not limited to, settlement strategies and spatial organization, raw material procurement, exchange networks and social interaction. We invite papers presenting new data, comparative studies or overviews, and we hope the session will serve as a platform where the state-of-the-art in the field is represented.

CONTRIBUTION ABSTRACTS

1249. NEOLITHIC VARDAR-MORAVA CONNECTIVITY. A SITE-BASED, INTERDISCIPLINARY AND COMPARATIVE APPROACH

**Contribution format:** Oral  
**Contribution authors:** Barbara Horejs – Darko Stojanovski (Austrian Archaeological Institute, Austrian Academy of Sciences)

The new site-based, interdisciplinary and comparative study on the ‘Neolithic Vardar-Morava Connectivity’ has been initiated by the authors in 2024. This multi-level research aims new primary data in the framework of a conceptual re-evaluation on the Neolithization of the central Balkans, which we understand as a key region for the European Neolithic, where the communities went through essential transformations by bridging the gap between the warm Mediterranean and the colder and humid continental parts of the continent. Our approach is focusing on comparing the two Neolithic sites Amzabegovo at the Vardar River and Svinjarička Čuka at the southern Morava River and their distinct micro-regions to identify the discrete mechanisms and the dynamics of the Neolithic spread between the Aegean and the Danube. The Vardar and Morava River valleys constitute one of the main corridors, facilitating the movement of people, goods, skills and ideas, and is well represented by both case studies we are currently excavating with state-of-the-art methods. This paper presents an overview of the ‘Neolithic Vardar-Morava Connectivity’ studies based on new contextualized materials.

721. THE VALLEYS OF THE STRUMA AND VARDAR RIVERS, TWO OR ONE WAY OF THE NEOLITHIZATION PROCESS?

**Contribution format:** Oral  
**Contribution authors:** Malgorzata Grębska-Kulow – Galia Vandeva (Regional Museum of History, Blagoevgrad)

The intensive studies of the Early Neolithic in the valleys of Struma (Strymon) and Vardar (Axios) have yielded novel data on the introduction and development of agriculture in this region, thereby revising extant theories and offering new insights into the emergence and development of the first settled communities. Importantly, these studies have provided realistic and plausible answers to significant questions related to the mechanism and causes



of Neolithization, especially in specific cases such as Kovachevo, Ilindenci and Brezhani. Concurrently, novel hypotheses have emerged, including the potential existence of an indigenous population during the Mesolithic period, the reasons for cultural divergences between the northern and southern regions, and the nature of interactions between settlements along the longitudinal axis. A significant yet often overlooked aspect pertains to the role of the third, Mesta (Nestos) river valley in the Early Neolithic settlement network. This paper will offer a comprehensive exploration of this issue from the perspective of studies conducted in the valleys of the Struma and Mesta in southwestern Bulgaria, but also in northern Greece, and the Republic of North Macedonia.

**1741. THE ESTABLISHMENT OF NEOLITHIC COMMUNITIES IN THE VARDAR BASIN: THE REVISED STRATIGRAPHY AND CHRONOLOGY OF AMZABEGOVO, AND EN BUILDING DYNAMICS**

**Contribution format:** Oral  
**Contribution authors:** Darko Stojanovski (Austrian Archaeological Institute | Goce Delčev University) – Lyndelle Webster (Austrian Archaeological Institute)

Balkan prehistory is experiencing a new initiative of modern scientific approaches and cutting-edge methodologies. Research groups in several regions are developing international long-term interdisciplinary projects, aimed at understanding the neolithization process on the Peninsula. Part of this is the renewed field project at Amzabegovo – a long term pillar of Neolithic studies in Southeast Europe and a key site on the Vardar-Morava corridor connecting the Aegean with the Middle Danube. Here we present the first overview of the revised stratigraphic sequence and phasing. The settlement has seen a long history of development and decline, lasting for over a millennium. Within that sequence, diachronic changes are obvious, reflecting and defining the Neolithic period of the region. Recently obtained absolute dates and micromorphology data, focusing on the EN sequence, have provided a robust timeline and insights regarding the modus of settlement establishment, lifeways and the intensity of (re-)building during the first centuries. Combining our data, and comparing our results with similar sites along the Balkan river routes, we are looking to interpret the dynamics, the mechanisms and the intensity of the first farmer-settlers of the Balkan hinterland.

**1873. EARLY FARMERS IN THE HIGHLAND DESSARETIAN LAKES REGION, SOUTHEAST ALBANIA: PRELIMINARY RESULTS FROM THE KORÇA REGIONAL NEOLITHIC PROJECT**

**Contribution format:** Oral  
**Contribution authors:** Patrick Willett (Vrije Universiteit Brussel | University at Buffalo SUNY) – Edlira Andoni (Albanian Institute of Archaeology) – Jana Anvari (University of Cologne | Flinders University of South Australia)

In this paper, we present results from the ongoing Korça Regional Neolithic Project, which is focused on a microregion in southeast Albania that is characterized by mountains, lakes, rivers and intramontane basins. Our project combines surface collection and geomagnetic survey with limited excavation on several sites to research the development of the Neolithic cultural landscape of this micoregion. The Korça plain contains the oldest farming sites investigated to date in Albania (from ca. 6450 BCE) and presents the opportunity to investigate the emergence and evolution of farming societies over a few millennia in a mountainous region at the intersection of the littoral and inner Balkans. Our interdisciplinary approach focuses on understanding the social and environmental context of the emergence of the Neolithic in our study region, and the structure and social organization of settlements, potential interactions between settlements, and human-environment interactions throughout this period. Here we will present the preliminary results from the first three field campaigns.

**1519. STREAMS OF TRANSFORMATION: EARLY NEOLITHIC SETTLEMENT PATTERNS AND HUMAN-ENVIRONMENT INTERACTIONS IN THE MIDDLE MORAVA VALLEY, CENTRAL SERBIA**

**Contribution format:** Oral  
**Contribution authors:** Olga Bajcev – Slaviša Perić – Đurđa Obradović – Ivana Dimitrijević – Ružica Savić (Institute of Archaeology, Belgrade)

The Middle Morava Valley in central Serbia lies along the Morava-Vardar Corridor, a major communication route connecting the Aegean and Anatolian regions to Central Europe. This strategic position made it a crucial pathway for the movement of people, goods, and ideas during the Early Neolithic period. Having in mind the role of rivers in the dispersal of the early farming communities, this paper explores the settlement patterns of Early Neolithic communities in the Middle Morava Valley, focusing on their interactions with riverine landscapes. The region is characterized by the expansive alluvial plain of the Velika Morava River, rich in fertile soils. Its tributaries on the east and west banks exhibit distinct hydrographic features due to the differing petrographic composition of the basin’s edges. The eastern tributaries, fed by numerous springs, are short, sediment-rich streams that form alluvial fans upon entering the basin. In contrast, the western tributaries are larger, with elongated and narrow alluvial plains. With 67 recorded Early Neolithic settlements, the Middle Morava Valley was among the

most densely populated areas of the Central Balkans during this period. This paper investigates how rivers influenced the spatial organization and community dynamics of these early farming societies. Did they favor the flat, fertile alluvial plains of the Velika Morava, or were the diverse terrains of its tributaries more appealing? How did proximity to waterways benefit these communities, and what role did aquatic resources play in their subsistence strategies? By addressing these questions, the study aims to illuminate the critical relationship between geography, natural resources, and human activity in shaping the development of Early Neolithic communities in the Middle Morava Valley.

**342. TAMING A RIPARIAN WORLD: THE SITE OF NOVA NADEZHDA AND THE EARLY NEOLITHIC IN THE MIDDLE MARITSA VALEY**

**Contribution format:** Oral  
**Contribution authors:** Krum Bacvarov – Nikolina Nikolova – Atanas Tsurev – Georgi Katsarov (Bulgarian Academy of Sciences)

Extensive investigations over the last two and a half decades have produced abundant evidence on the early farming communities that settled in the Middle Maritsa Valey in Upper Thrace at the turn of the seventh millennium BC. It’s now obvious that they soon developed different adaptations to the new environment and were involved in large-scale exchange networks. This presentation will focus on the Early Neolithic occupation at the site of Nova Nadezhda in southeast Bulgaria and will discuss the dynamics of human-environment interactions throughout the site’s life using relevant excavation results as well as evidence produced by scientific techniques such as fluxgate gradiometry, electrical resistivity profiling, radiocarbon dating, and various sedimentological, mineralogical, isotopic, osteoarchaeological, archaeobotanical, and palynological analyses. Moreover, the talk will also use examples from other larger or smaller-scale digs and surveys to argue that the Early Neolithic in the Middle Maritsa Valley witnessed the appearance of complex social networks in the course of the adaptations to the challenges of the riparian environment and the exploitation of local resources giving further insights into the use of the valley as a dynamic thoroughfare of interaction and exchange during the Neolithic expansion in Upper Thrace.

**1040. THE ABSOLUTE CHRONOLOGY AND STRATIGRAPHY OF NOVA NADEZHDA AND THE NEOLITHIZATION OF THE MIDDLE MARITSA VALLEY**

**Contribution format:** Oral  
**Contribution authors:** Nikolina Nikolova – Atanas Tsurev – Georgi Katsarov – Krum Bacvarov (Bulgarian Academy of Sciences)

The early neolithization of Upper Thrace is a key focus of research, with current evidence suggesting this process already in progress around the turn of the seventh millennium BC. Despite the Maritsa River’s prominence as the region’s largest waterway and communication corridor, its role in the Early Neolithic occupation has been underexplored. However, recent research in the eastern part of the Middle Maritsa Valley seems to indicate that the Neolithic way of life was introduced into the area before the end of the seventh millennium BC, which is evidenced by the early radiocarbon dates, relatively long stratigraphic sequences, and a developed settlement pattern. The prehistoric site of Nova Nadezhda, which sits almost directly on the bank of the Maritsa, offers valuable insights into the early farming settlement patterns, as well as into the routes of Neolithic expansion in Thrace. Ongoing excavations revealed a well-developed settlement layout consisting of a residential area with a dozen houses uncovered so far, pits, and five successive enclosure ditches. The stratigraphic and chronological evidence is supported by a series of over 80 radiocarbon dates – the longest sequence of absolute dates recorded for the Early Neolithic in Thrace as well as the Balkans. The Early Neolithic occupation of the site appears to have lasted for approximately 450 years – from the very beginning of the sixth millennium BC or shortly before it to around its midpoint. This presentation will discuss the distinct phases of Early Neolithic occupation at Nova Nadezhda based on the substantial number of radiocarbon dates and the stratigraphic sequence. The foundation and the long life cycle of the site will be examined in relation to the available data on the neolithization of Thrace and the timeframe of the Early Neolithic in the area.

**539. THE EARLY NEOLITHIC CERAMIC ASSEMBLAGE OF NOVA NADEZHDA AND ITS POSITION WITHIN THE RIVERINE COMMUNICATION NETWORKS IN THRACE**

**Contribution format:** Oral  
**Contribution authors:** Atanas Tsurev – Nikolina Nikolova – Georgi Katsarov – Krum Bacvarov (Bulgarian Academy of Sciences)

The prehistoric site of Nova Nadezhda in the Middle Maritsa Valley provides an insightful case study into the Early Neolithic settlement patterns in Thrace and particularly into the role of river valleys as conduits for population movements and exchange of ideas and know-how. Viewed in the context of a broader communication network, the site’s pottery assemblage serves as a key dataset for tracing these interactions, offering insights into how early



farming communities adopted, adapted, and innovated ceramic production techniques while developing a distinct style throughout the Early Neolithic of Thrace. This study is based on a comprehensive analysis of the complete Early Neolithic ceramic assemblage from Nova Nadezhda consisting of over 32,000 sherds, mostly from the enclosure ditches and related contexts, supplemented by ceramic finds from the ongoing research at a residential area of the site. The results from the pottery analysis are supported by stratigraphic evidence and radiocarbon dating allowing the identification of several chronologically distinct occupational phases at the site. While some features show chronological complexity due to redeposited material, the earliest and latest phases provide a relatively ‘clean’ dataset for comparison. By examining ceramic typology, technological choices, and stylistic development, this presentation explores the position of Nova Nadezhda within the Early Neolithic settlement networks. The findings contribute to broader discussions on how early farmers used river valleys as pathways for expansion, resource distribution, and cultural interaction in the Eastern Balkans.

869. SETTLING THE HEIGHTS: THE NEOLITHIC OCCUPATION OF A PLATEAU IN THE LOWER DANUBE

**Contribution format:** Oral  
**Contribution authors:** Georgi Katsarov – Nikolina Nikolova – Krum Bacvarov (Bulgarian Academy of Sciences)

This presentation will discuss the evidence on the early farming occupation in the microregion of the Popovo Heights in the Lower Danube, between the valleys of the Cherni Lom and Baniski Lom Rivers and their tributaries. The earliest farming communities seem to have settled along the river that rises near the highest point of the plateau. Three Neolithic sites have been identified on its ridge, including a fortified settlement site, all dating to the first half of the sixth millennium BC based on surface scatters collected during non-intrusive field surveys. The southwestern part of the plateau was occupied in the second half of the sixth millennium BC corresponding to the Late Neolithic in the Eastern Balkan chronology. This area was investigated with magnetic gradiometry followed by large-scale excavations. Approximately 120 pits were uncovered at the site that yielded deposits of burnt structural debris, various artifacts, and faunal remains. Some of the pits were sealed by heaps of burnt house ruins. The excavation results provide indirect but significant insights into the later Neolithic occupation of the plateau emphasizing its role in the early settlement dynamics, the exploration of marginal landscapes, and the use of river valleys as corridors for the movement of both people and ideas, thus contributing to a broader understanding of the Neolithic settlement patterns in the northern parts of the Eastern Balkans.

1357. THE ROLE OF RIVER SYSTEMS IN THE SPREAD OF THE NEOLITHIC IN THE BALKAN-CARPATHIAN REGION

**Contribution format:** Oral  
**Contribution authors:** Dan Ciobotaru (National Museum of Banat in Timisoara) – Raiko Krauss (Tübingen University)

Rivers played a special role in the continental spread of the Neolithic from western Anatolia and the Aegean to Central Europe. This is not surprising when one considers the spread of Neolithic groups around the Mediterranean, which suggests a dense maritime network. Goods, but also seeds and demonstrably even live animals were transported over sea. It is therefore only logical that the northward spread to the European continent initially took place via the river valleys. It was not until the Linear Pottery Culture (LBK) that a different pattern of dispersal became apparent, as the Neolithic groups no longer orientated themselves primarily along the rivers, but instead specifically sought out loess soils. This applies to the western part of the Carpathian Basin (Transdanubia) and beyond that to large parts of Central Europe, from the Paris Basin in the west to the Ukrainian steppes in the east and in the north to just before the shoreline of the Baltic Sea. However, the situation in the east of the Carpathian Basin (Banat and Alföld) is different. The Neolithic groups here continued to move predominantly along the river systems. The different resource utilisation resulting from this is interesting. Various example regions will be compared in this paper.

1654. OPOVO UGAR-BAJBUK REVISITED: NEW RESULTS FROM GERMAN-SERBIAN RESEARCH ON SOCIAL STRUCTURE, DEMOGRAPHY, AND ECONOMY ON A LATE NEOLITHIC SITE

**Contribution format:** Oral  
**Contribution authors:** Fynn Wilkes (Kiel University) – Miroslav Birclin (National Museum Pančevo) – Martin Furrholt (Kiel University) – Tijana Stanković Pešterac – Aleksandar Medović (Museum of Vojvodina) – Kata Furrholt (Kiel University) – Ildiko Medović (Museum of Vojvodina) – Robert Hofmann (Kiel University)

The Late Neolithic site of Opovo Ugar-Bajbuk (Serbia), situated in the Tamiš River floodplain and in the Southern Banat, has been known since the 1960s and was extensively investigated during an international research project in the 1980s (Tringham et al. 1992). Earlier studies classified Opovo as a small to medium-sized settlement with an economy adapted to its environment. However, recent research conducted by our German-Serbian

team—including geophysical surveys, targeted drillings, and surface investigations—indicates that the site is much larger and exhibits a more complex spatial organization than previously believed. These findings allow for a deeper insight into the settlement’s social structure, demographic composition, and economic specialization. Additionally, a broader survey of the Serbian section of the Tamiš River has identified multiple related sites, allowing for a preliminary reconstruction of the regional settlement network. This contextualization provides a new perspective on Opovo’s role within the regional Late Neolithic settlement system. By integrating recent findings with data from previous excavations, this talk offers a more comprehensive and updated understanding of Opovo’s function, its social structure, economy, and a glimpse on its relationship with neighboring sites. Our research contributes to ongoing discussions on Neolithic settlement patterns, social organization, and economic adaptation in floodplain environments.

2294. EXPLORING HOUSE SIZE VARIABILITY IN THE LATE NEOLITHIC OF THE CENTRAL POMORAVLJE, SERBIA

**Contribution format:** Poster  
**Contribution authors:** Ružica Savic (Institute of Archaeology, Belgrade)

This paper examines the sizes of houses from the Late Neolithic period (5300–4500 BC) at three archaeological sites: Drenovac, Supska, and Kraljevo Polje. These sites are located in Central Pomoravlje, a region of strategic importance throughout history due to the Great Morava River, a key communication and economic corridor. The riverbanks provided favorable conditions for settlement, as evidenced by numerous multi-layered archaeological sites found along its valley and tributaries. The study aims to determine whether contemporary, geographically close settlements exhibit similarities in average house sizes and to explore potential relationships between house size, orientation, and relative chronology. These insights can help reconstruct settlement expansion and development over time. A one-way analysis of variance (ANOVA) was conducted to identify statistically significant differences in average house sizes, while variability within each settlement was assessed using range, standard deviation, and extreme values. The results reveal significant differences between locations and varying degrees of size variability among residential buildings within each settlement. This analysis provides a foundation for understanding settlement development and for investigating potential economic or cultural influences that shaped daily life in these communities.

24 ACTOR, ACTION, AND PLACE: THE PROPAGATION AND MODIFICATION OF CULT PRACTICE IN THE ROMAN WORLD

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** Roman archaeology, ritual, identity, cultural transmission, Roman provinces  
**Session organisers:** Kaja Stemberger Flegar (PJP d.o.o.) – Jason Lundock (Full Sail University) – Aaron Irvin (Murray State University)

SESSION ABSTRACT

Ancient cults found their expression not in a set of orthodox statements of faith, but rather in orthopraxic ritual activities. Ritual practice functions as a foundational element for both communal and personal identity, binding allies as well as manifesting animosities. Yet as cults spread throughout the Roman Empire, their fundamental ritual elements also shifted to a new location, a new set of actors, and a new set of ritual actions. This, in turn, created entirely new cults and new communities. This panel shall explore the spread of ritual practices in the Roman World, as traceable through material remains, in order to examine this interaction of new and old ritual dissemination, the formation of new communities from old, and the development of the Roman Empire’s multi-cultural environment as seen through its diverse cult communities. Thus, our discussion will contribute to further understanding of culture change and adaptation across the Roman world as well as the role that shared ritual practice plays in the formation of communities and identity.

CONTRIBUTION ABSTRACTS

473. PROSELYTISM AND PROPAGATION OF POLYTHEISTIC CULTS

**Contribution format:** Oral  
**Contribution authors:** Aaron Irvin (Murray State Univeristy)

The study of the movement, proselytism, and conversion among and between religions has almost exclusively been the purview of modern orthodox religious studies. There is seemingly an obvious reason for this, as these



religions seemingly present an “all-or-nothing” concept of conversion, are generally brought in from outside, and are thus distinguishable from existing religious traditions. In short, they create what are easily quantifiable data sets. With polytheism existing as a seemingly endless, open-ended, and unrestricted array of potential deities to worship and interact with however one sees fit, trying to quantify and therefore discuss concepts of proselytism, conversion, and movement seems a daunting task indeed. Even when broken down to the level of individual cults, the potential concept of polytheistic conversion or polytheistic missionaries have instead been used to discuss trade networks, social interactions, and expressions of authority, rather than the nature of religion and religious pluralism or exclusivity within a polytheistic context. It has been noted that polytheistic cults apparently proselytize and move, but as of yet no one has attempted to confront how or why polytheistic cults proselytize and move. Such is the goal of this paper.

374. RITUALS ASSOCIATED WITH THE LAPIS NIGER IN THE ROMAN FORUM

**Contribution format:** Oral  
**Contribution authors:** Fangfang Tian (Sapienza University of Rome)

After the discovery of the Lapis Niger by Giacomo Boni in the Roman Forum, the archaeologists identified its connection to ritual activities associated with early Roman religion. The area of the Lapis Niger includes a U-shaped altar covered with black marble paving and a cippus with Greek inscriptions and a tapered base. Through the analysis of votive deposits and the content of the inscriptions, it becomes evident that ritual practices were deeply embedded in early Roman law. From an archaeological perspective, the use of specific objects may have played a juridical or administrative role in the ritual applications of the Lapis Niger. These objects include various types of pottery, bronze and terracotta figurines, ivory and bone artifacts, and animal remains. Votive deposits were closely linked to ritual functions—for example, knuckle bones used for divination and other animal bones interpreted as sacrificial remains. Notably, some of these bone remains belong to a vulture, a bird strongly associated with the foundation myth of Rome. Miniature vases, similar to other archaic votive offerings in Latium, were likely used in rituals. The most famous statue from the site, known as the “Augur of the Lapis Niger,” represents an augur in the formal act of interpreting divine will. Although the inscription found at the site is fragmentary, it clearly reflects elements of religious law. It contains references to specific ritual actions and terms, such as sakros esed (“he must be cursed”), a phrase also found in the Law of the Twelve Tables. These elements demonstrate the continuity and evolution of Roman sacred law, which remained deeply intertwined with religious practice over time.

292. EVIDENCE OF THE EARLY PRESENCE OF WORSHIPPERS OF THE CULT OF JUPITER DOLICHENUS IN THE ROMAN FORT OF APSAROS (GEORGIA)

**Contribution format:** Oral  
**Contribution authors:** Maciej Marciniak (Polish Centre of Mediterranean Archaeology, University of Warsaw | University of Warsaw | National Museum in Warsaw)

The Roman fort in Apsaros is located in the village of Gonio, in the Adjara region of present-day Georgia, about 8 km south of Batumi, by the Black Sea. It was one of the principal forts along the so- called Pontus-Caucasian frontier, or Pontus Limes, between the 1st and 3rd centuries AD. Apsaros was first mentioned by Pliny the Elder in his Natural History (NH 6.12). By AD 132, when Arrian visited the site, it housed five cohorts (Arr. Peripl. 6,1–2). The Tabula Peutingeriana (X,5) depicts Apsaros with a schematic illustration of the fort, without highlighting other coastal fortifications in the region. Years of excavations conducted by the Gonio–Apsaros Polish–Georgian Expedition have led to the discovery of a range of notable finds that can be directly or indirectly linked to the cult of Jupiter Dolichenus. This mystery cult, classified as an ‘Oriental deity,’ gained popularity in the first half of the second century AD, reached its peak during the reign of the Severan dynasty in the early third century AD, before rapidly declining. Among the finds are well-preserved bronze figurines, a knife handle, and a gold plaque with a dedication. Some of these objects can be dated quite precisely to the beginning of the second century AD. Therefore, it is plausible to assume that the cult of the god from Doliche arrived at the fort in Apsaros relatively early. The collection and its dating may contribute to discussions on the role of the Apsaros fort and its inhabitants in the transfer of the cult of Jupiter Dolichenus to Europe.

1237. DECODING THE MITHRAS CULT IN COLONIA IULIA FELIX SINOPE: ARCHAEOLOGICAL INSIGHTS

**Contribution format:** Oral  
**Contribution authors:** Eleni Mentesidou (International Hellenic Unverisity)

Rooted in ancient Persian mythology, Mithras was one of the principal deities venerated during the Achaemenid Empire. Following Alexander the Great’s conquests, the worship of Mithras persisted in regions of Anatolia and Armenia, where the cult had already established roots. During the Roman period, the cult of Mithras evolved into a distinct mystery religion, Mithraism, which flourished between the 1st and 4th centuries AD. This syncretic religion, centered around the Romanized figure of Mithras, developed its own unique mythology and ritual

practices, spreading widely across the Roman Empire. This presentation focuses on the archaeological evidence from Sinope, one of the most significant Greek cities on the southern coast of the Black Sea, to explore the cult of Mithras. Key questions guide this investigation: Who were the worshippers of Mithras in Sinope? Was the spread of the cult in Sinope influenced by its historical connections to the Achaemenid Empire, or was it driven by other factors related to the cultural context of the Roman period? By analyzing archaeological finds, we aim to reconstruct the ritual practices and community dynamics associated with the cult in Sinope. The study of Mithraism in Sinope offers a compelling case for examining how ancient cults adapted to new cultural and geographical contexts, shedding light on the spread of ritual practices in the Roman world and their role in shaping multicul- tural communities. Through the study of Mithraic material remains in Sinope, we aim to reconstruct the local ritual practices and their significance within the broader framework of Mithraic worship.

2084. MUSIC OR MAGIC? SET OF COPPER ALLOY BELLS FROM CERKNICA (SLOVENIA)

**Contribution format:** Oral  
**Contribution authors:** Mija Toplicanec (ZVKDS OE Ljubljana) – Ana Kovačč (Independent researcher) – Kaja Stemberger Flegar (PJP d.o.o.)

In the spring of 2016, a spectacular set of Late Antique copper alloy bells was discovered on a slope near Lake Cerknica (Slovenia). The six bells, all different in size, were deposited in a rock crevice and covered with a large stone slab, indicating that the deposition was done intentionally. Considering also the proximity of the water body, the find may be ritualistic in nature, since there are clear prehistoric and Roman traditions of depositing items in or near the water. In our case, Lake Cerknica was not only significant enough to have been mentioned by Strabo as “helos Lougeon kaloumenon”, it is also the largest intermittent lake in Europe. Bells themselves are in the Roman period frequently associated with magic, rites of passage, as well as closing and opening in both the pragmatic and the symbolic sense, and they were furthermore considered apotropaic items. Since copper alloy bells were previously not studied systematically in Slovenian archaeology, we aim to contextualise our find, and present other potential examples of bells used in rituals.

25 THE SPREAD OF MEDIEVAL GLAZE TECHNOLOGIES: CROSS-CRAFT AND CROSS-CULTURAL PERSPECTIVES

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** glaze technology, glazed ceramic, global Middle Ages, cross-craft interaction  
**Session organisers:** Elena Salinas (School of Arabic Studies, Spanish National Research Council (EEA, CSIC)) – Carmen Ting (University of Leicester)

SESSION ABSTRACT

Glaze technology during the 7th to 15th centuries CE, loosely equivalent to medieval period, is a subject that has attracted particular interest in the scientific community in recent years, resulting in a growing number of publi- cations that focused on exploring region-specific technological developments and testing new methods. Despite these advances, we are still missing a framework that will allow us to compare not only the development of glaze technologies across different parts of the world in a systematic way, but also to explore the agents, mechanisms and driving forces underlying these developments. This session seeks to fill in these important methodological and theoretical gaps of the existing research framework by (1) establishing the best practices in the scientific study of archaeological and historical glazed materials; (2) developing new ways and/or models in disentangling the occurrence of cross-craft and cross-cultural interactions behind the adoption of glaze production; and (3) promoting a comparative approach to studying glaze technologies in the global medieval context. We, therefore, welcome papers that feature a strong multidisciplinary element (e.g. a combination of archaeology, history, art history, anthropology, ethnography, natural science and/or experimental) in the study of glaze technologies that are characteristic of but not limited to the medieval period. We are also interested in papers that focus on testing new scientific methods but with a clear motivation to solve historical problems. We further encourage insights from studies that centre on glazed objects other than pottery such as architectural materials and figurines, which are currently underrepresented in the discussion of the spread of medieval glaze technologies.



906. TECHNOLOGICAL TRANSFERS OF GLAZED CERAMICS IN MEDIEVAL MEDITERRANEAN

**Contribution format:** Oral  
**Contribution authors:** Elena Salinas (Escuela de Estudios Árabes, CSIC)

The technology of making glazes was not mastered by all the medieval Mediterranean regions at the same time. Nor did they all use the same techniques to cover the ceramics: transparent, tin-opaque, quartz-opacification, high-lead, alkali lead, single firing, double firing, glass, etc. The study and identification of the techniques used in each region help us to understand their technological evolution, the movement of specialised potters from one region to another, the contact or lack of it with other medieval states, and how fashion and influences travelled and were adopted by medieval societies. We will also discuss how glazing technology was used as a way of legitimising power, creating a distinct identity and technological superiority to differentiate themselves from other medieval powers. Some case studies concerning the Maghreb, Ifriqiya, Egypt or al-Andalus will be discussed to trace these technological transfers across the Mediterranean Sea, especially between the 9th and 13th centuries.

1480. RETHINKING THE ROLE OF THE LEVANT IN THE SPREAD OF GLAZE PRODUCTION IN ISLAMIC WORLD

**Contribution format:** Oral  
**Contribution authors:** Carmen Ting (University of Leicester)

Glazed tableware is one of the hallmarks of the material culture across Islamic lands. These vessels are not only known for their decoration and designs, but their sheer presence in the archaeological record also marks a major episode of material revolution, as the production and consumption of glazed tableware did not start in many regions until they were under the Muslim control. In this talk, I will explore the origins and development of the technologies used to produce the glazed tableware recovered from the southern Levantine coast during the early Islamic to the beginning of the Crusader period (9th to 13th centuries CE). I will focus specifically on the glazed tableware types that do not feature the use of an opaque white tin glaze, evidence as such is underrepresented in the extant research framework. Drawing from a combination of archaeological, technological and isotopic evidence, our results showed that the beginning of glazed tableware production did not happen in vacuum, but it was rooted in the pre-existing local ceramic traditions and craft structures, supported by an interaction with other crafts. Participation in regional and supra-regional exchange networks facilitated the movement of raw materials, knowledge and ideas, providing further impetus for technological and social innovations.

569. TECHNOLOGICAL INNOVATION IN EARLY ANDALUSI CERAMICS: THE CASE OF THE KŪRA OF ILBĪRA (9TH-11TH CENTURY)

**Contribution format:** Oral  
**Contribution authors:** Cristina Martínez-Álvarez (Archeologii i Etnologii Polskiej Akademii Nauk)

In recent decades, various methodologies have been developed to determine whether ceramics found in settlements across al-Andalus are of local or imported origin. These studies have demonstrated that a comprehensive, multidisciplinary approach to ceramic analysis provides essential insights into exchange networks and manufacturing traditions. This contribution presents the results of recent archaeometric analyses conducted on six ceramic assemblages from both rural and urban sites in the Kūra of Ilbīra, located in the southeastern Iberian Peninsula. The chemical composition of ceramic pastes and glazes was analyzed using scanning electron microscopy with energy-dispersive spectroscopy (SEM-EDS). The study investigates the technological characteristics of these ceramics, focusing on production traditions and the emergence of new cultural practices during this period. By integrating advanced chemical analyses, this research enhances our understanding of ceramic technologies in the Kūra of Ilbīra between the 9th and 11th centuries. Additionally, it seeks to identify potential production centers, their distribution networks, and the role of rural and urban settlements within broader commercial circuits across al-Andalus. Aligned with the session’s theme, this proposal adopts a comparative, interdisciplinary approach that draws on archaeology, materials science, and historical studies of glazed ceramic technology. It highlights the transmission of technological knowledge among potters and examines the influence of both local and long-distance trade on ceramic traditions, particularly the diffusion of glazing practices.

1504. CONSUMPTION OF GLAZED POTTERY IN A 12TH CENTURY ANDALUSI QUARTER IN ALMERIA (SPAIN)

**Contribution format:** Oral  
**Contribution authors:** Miguel Ángel Quero Domínguez (University of Almería)

The study of glazed ceramics offers fundamental keys to understanding the consumption habits, aesthetic preferences and technological innovations in Andalusí society. This oral communication will present the results of the analysis of a ceramic assemblage from a 12th-century residential quarter located in the madina of al-Mariyya (Almería), a strategic enclave of the Mediterranean and Atlantic during the Almoravid period (1090 - 1147). The wide variety of typologies and decorative techniques documented will be discussed, including monochrome and polychrome glazes, underglaze and overglaze decoration, as well as tin and quartz opacification treatments, reflecting both local production and Mediterranean influences. Particular attention will be paid to tableware and kitchenware, exploring their role in everyday life and their relationship with the local workshops and their commercial networks. This communication aims to contribute to the debate on the circulation of ceramic goods for consumption in the Islamic Mediterranean through an archaeological and archaeometric approach.

807. GC-CIGA. GLAZE CERAMIC INTRODUCTION AND CONSUMPTION IN THE GARB AL-ANDALUS

**Contribution format:** Oral  
**Contribution authors:** Massimo Beltrame – José Mirão (Hercules Laboratory - University of Évora) – Susana Gomez Martinez (University of Évora - CEAACP - CAM) – Elena Salinas (School of Arab Studies - CSIC)

GC-CIGA is new research project recently granted by the Portuguese Science and Technology Foundation to the University of Évora (Portugal) in collaboration with the School of Arabic Studies (CSIC-Spain). The main goal of the project is to explore the diffusion of glaze technology in the western al-Andalus, the Garb al-Andalus, and to understand how Islamic social-cultural expansion, Islamic culture assimilation, people mobility, social inequalities, exchange of know-how, political propaganda, trades expansion, and raw material access and exploitation might have influenced this process. In this framework, the application of a multidisciplinary approach to the study of Islamic glazed ceramics combining different disciplines (i.e. archaeology, history, archaeometry and ore geology) will permit the acquisition of a complete dataset to decipher different historical dynamics. To this extent, starting from the production and diffusion of first glazed ceramic exemplars, it will be important to understand and evaluate the dissemination patterns between the heartland and the periphery, the social reasons behind the adoption of glaze ceramics, the diffusion of know-how in the following centuries, the multiplication of ceramic workshops, and the possible differentiation in raw materials procurement for glaze production in the periphery of the al-Andalus if compared to the heartland of Islamic Iberia (i.e. Southern al-Andalus – Cordoba). These data will be used to evaluate the diffusion of Islamic glazed ceramics in the Garb al-Andalus with a chronological, geographical, technological, and socio-cultural perspective. The project hope to offer a new perspective of Medieval Iberi. between the 9th to 13th century AD, tightly connected to the production, consumption, and promotion of glazed ceramics.

1562. (RE-)LIGHT MY FIRE – INNOVATIVE GLAZE TECHNOLOGY ON A STOVE TILE FROM FREIBURG IM BREISGAU, SW-GERMANY

**Contribution format:** Oral  
**Contribution authors:** Sophie Hueglin (University of Tuebingen)

Among the first glazed ceramic objects of the medieval period are stove tiles. Initially, tiled stoves were valued as remote heating devices for early castles, palaces, and monasteries, and soon also for their figurative programs. Much like glass vessels or tapestries, they illustrated the belief systems and legendary tales that the commissioners wished to associate with and impress their guests in ceremonial rooms. In this regard, the coloured glaze played a significant role, as it made the texture of the tiles more visible, especially at night, enhanced the decoration, and could virtually illuminate the scenes. For the 14th and 15th centuries in Southern Germany and Northern Switzerland, the diverse finds from the latrine of the Augustinians in Freiburg im Breisgau play a central role (Untermann 1995). The amount and the quality of the ceramics allow us to study the beginning of the use of glaze on ceramics in general. Fragments of several niche tiles show the rather rarely depicted 13th-century troubadour’s tale of Vergil’s revenge, which was part of the literary and artistic topos of the ‘power of women’. In this part of the story, fire, flames, and torches play a central role; here, coloured glazes are masterly used to create contrasts and illuminate the scene. Comparing the fragments with other stove tiles found in Freiburg im Breisgau, it becomes clear that the monastery must have had a pottery workshop of its own. There, contributors with literary, artisan and alchemist backgrounds must have worked together to know the tale, conceptualise the scene and develop new glaze recipes (Stelzle-Hüglin 1998; Hüglin forthcoming). Also, the use of glaze on the stove tile will be compared with a 15th-century multi-coloured glass chalice from Venice, now held at the Cloisters, New York, depicting the same scene.



468. CERAMIC GLAZES AND DECORATIONS: TECHNOLOGY AND HISTORY

Contribution format: Oral  
Contribution authors: Trinitat Pradell (UPC)

Glazes add value to ceramic, improve its appearance (colour and shine) and make it waterproof. Through the choice of colours and designs, glazes made ceramics fashionable, even luxurious, and therefore, an object of trade. Each region and ruling dynasty developed its own style or trademark which makes them particularly suitable for dating purposes. Therefore, the study and analysis of glazes offers direct information about the acquisition of technical skills (technology), trade of specific materials (interregional links), migrations and the introduction/adoption of new trends. A ceramic glaze is a thin glassy layer fused to the surface of a ceramic body through firing. The interaction between the glaze and the ceramic body results in the interdiffusion of elements between both. A glaze consists mainly of an amorphous phase, but also includes bubbles, cracks and crystalline phases (undissolved compounds and crystals formed during the firing). Finally, the glazes were also decorated, and a large variety of materials and methods of applying the decorations were used. In this contribution, we will present a summary of the technical characteristics of glazes (composition, microstructures and technical requirements), their discovery and use throughout history and decorative techniques. The methodology and analytical techniques to obtain the information will also be discussed.

1488. DETERMINING OVERGLAZE AND UNDERGLAZE APPLICATIONS IN ANCIENT CERAMICS USING SEM AND MICRO-XRD ANALYSIS

Contribution format: Oral  
Contribution authors: Judit Marimon (Universitat de Vic - Universitat Central de Catalunya) – Trinitat Pradell (Universitat Politècnica de Catalunya) – Elena Salinas (CSIC- Escuela de Estudios Arabes)

The determination of whether ancient ceramic decorations are applied as overglaze or underglaze is crucial for understanding historical ceramic production techniques. Underglaze consists of painting the unfired ceramic pot with pigments before the first firing (biscuit). After firing, the decoration is fixed onto the ceramic body and cannot be removed by washing. A glaze is then applied over the decorated biscuit, and the ceramic is fired again. This technique produces sharply defined designs. Transparent glazes are commonly applied over underglaze decorations, but opaque tin glazes can be used for pigments with high diffusivity. Overglaze involves applying a glassy colored layer over a raw glaze, which is then fired again to fuse the decoration to the surface. Determining this can indicate whether a transmission technique or copies that achieve similar decoration in a different way were used. This study employs optical microscopy (OM), scanning electron microscopy (SEM), and micro-X-ray diffraction (micro-XRD) to analyze the glaze layers of ancient ceramics. Petrography is particularly useful for examining the color and its distribution across the ceramic material. SEM is a fundamental tool for determining the chemical profile of the chromophore elements in the cross sections of glazes. The identification of crystallites related to the chromophore elements can be challenging due to their small size (less than one micrometer) and/or low element contrast. Micro-XRD can identify phases with similar contrast in SEM, even for very small crystals or different polymorphs. Moreover, we present laboratory-made replicas that allow for the identification of specific insights, serving as fingerprints to determine whether the decoration was applied as underglaze or overglaze.

1712. GLAZED POTTERY WORKSHOPS IN BYZANTINE AND OTTOMAN THESSALONICA: CONTINUITIES AND CHANGES OF THE GLAZE PRODUCTION TECHNOLOGY (11TH-16TH CENTURIES)

Contribution format: Poster  
Contribution authors: Konstantinos Raptis – Periklis Slambeas (Ephorate of Antiquities of Thessaloniki)

Rescue excavations, which have been conducted in Thessalonica during the last 50 years have revealed archaeological data regarding the architectural remains as well as material waste from glazed pottery workshops that were operating from the 11th until the 16th century in Byzantine and consequently, after the year 1430, Ottoman Thessalonica; a diachronic urban center that has been established as a significant production center of glazed wares from the late Middle Byzantine period (late 11-12th centuries) and throughout the Late Byzantine period (13th – early 15th centuries) until the first period after the Ottoman occupation (1430 – 16th century). Based on the aforementioned ascertainments, this poster examines the continuities and the changes of the glaze technology applied in the Thessalonian glazed pottery workshops, presenting briefly the fabric and the shape of the wares and discussing mainly the type and the composition of the pigments and the, lead based, glaze applied in both the Byzantine and the Ottoman production, as well as the second firing of the production.

26 EMPOWERING HEIGHTS: THE IMPACT OF HUMAN AGENCY ON ANCIENT UPLAND SANCTUARIES BETWEEN NATURE AND RITUAL

Session theme: 1. On artefacts and beyond  
Session format: Session with keynote presentation  
Session keywords: Peak Sanctuaries, Greek Religion, Pre-Roman Religion, Landscape Archaeology, Archaeology of Uplands  
Session organisers: Aura Piccioni (Universität Trier) – Marianna E. S. Negro (University of Cambridge) – Laura Sarli (Universität Trier)

SESSION ABSTRACT

This session aims to examine the significance and functions of upland sanctuaries in ancient civilizations, with a particular focus on – but not limited to – Etruscan-Italic, Greek, and Roman examples. The discussion will address the ways in which they were integrated into the broader socio-political and economic structures of their respective cultures, as places where collective memory was both created and sustained. These sites, frequently situated on mountain peaks, but not limited to them, played a pivotal role in a multitude of contexts extending beyond the purely religious. Consequently, they have been inadequately addressed in a multitude of scenarios (cf. the interesting questions posed by Sporn 2013, 465-475). The exception to this seems constituted by the case of Minoan peak sanctuaries (Peatfield 2009, 251-259). The analysis of the spatial distribution and ritual practices associated with these sanctuaries, in addition to an exhaustive examination of the archaeological evidence, including artifacts and structural remains, are among the anticipated outcomes. Both the artifacts and the landscapes surrounding these sanctuaries retain their significance over time becoming an integral part of our heritage. The principal objective is to identify the defining characteristics of an upland sanctuary. In what circumstances might it be appropriate to adopt an emic or an ethic perspective? Can common patterns of development be recognized in these sanctuaries, despite the unique characteristics of each culture? What characteristics do these sanctuaries possess? What can be said about the rituals performed at these locations? Can specific societal layers be identified? What were the functions of upland sanctuaries within the social and political structures of ancient communities? How were natural landscapes integrated into the religious and mnemonic discourse of these sanctuaries?

CONTRIBUTION ABSTRACTS

1080. ANTHROPOMORPHIC MEGALITHISM IN NORTHERN PUGLIA. RECONSTRUCTIVE HYPOTHESES OF A PROTOHISTORIC PLACE OF WORSHIP

Contribution format: Oral  
Contribution authors: Maria Luisa Nava (Università Suor Orsola Benincasa Napoli)

Since the end of the third millennium BC the indigenous populations of Daunia are characterized by the production of stone sculptures. This phenomenon is part of the anthropomorphic megalithism in the Mediterranean area. Their function, exclusively cultic and religious, was an expression of collective belief. Later the stelaes become expression of an individual celebration, an original manifestation of the Daunian culture until the disappearance of the indigenous culture following the Roman conquest. This paper aims to examine the most ancient evidences of anthropomorphic megalithism in ancient Puglia, proposing an analysis of the function and meaning of the monuments, outlining also possible inferences with religious and ceremonial practices. The stelae from the late Eneolithic and Early Bronze Age express the divine and transcendent essence inherent in the spirit of men and women and show close formal and content-related affinities with the stelae-statues found in central Italy, in an area extending from Lunigiana to upper Tuscany. The stele statues of Bovino/Castelluccio dei Sauri were found on the slopes of the Daunio Sub-Apennines, in the basin of the Cervaro river, which established the connection between inland Campania and the Adriatic coast. The area of origin of the monuments (about 60 steles), is a rather restricted territory. Therefore we may suppose that they were originally placed in an open-air sanctuary, where they would have fulfilled a religious and cultural function. This interpretation would also be confirmed by the presence – in the surrounding areas – of a contemporary frequentation by Eneolithic peoples, with tangible evidence of their stable presence both with settlements and with cremation burial places. These evidences support the hypothesis that these monuments were a fundamental part for the devotio and religiosity of ancient Daunia.

1166. HIDDEN IN THE HEIGHTS: EXPLORING THE RITUAL ROLE OF PREHISTORIC HILLTOP SITES IN PRIGORJE, CROATIA

Contribution format: Oral  
Contribution authors: Franka Ovcarić – Luka Drahotusky-Bruketa – Laura Šejić – Janja Mavrović Mokos (University of Zagreb, Faculty of Humanities and Social Sciences, Department of Archaeology)



Recent research in Prigorje, Croatia, identified two prehistoric sites with indications of cult practice: Sv. Križ and the newly discovered site Oštrc. Both sites occupy elevated positions, emphasizing the strategic importance of hilltop locations in controlling river valleys and regional corridors. The Prigorje area, situated along the Sava, Sutla, and Krapina rivers, with Medvednica mountain and its foothills, served as a vital resource zone and an ideal setting for prehistoric settlement. The Late Hallstatt site Sv. Križ is positioned at 310 meters above sea level, overlooking the Sava Valley and Brežice Gate. Excavations at the settlement have revealed a rectangular ritual structure, distinct from other structures on the site. Inside, exceptional finds were uncovered, including carefully selected animal bones and one human bone. The deposition of artifacts, based on the fibula dating, occurred over a span of two centuries. In contrast, Oštrc is located at an elevation of 737 meters on the eastern slopes of Medvednica mountain. On a small terrace, a circular dry-stone structure surrounded by a substantial quantity of intentionally broken decorated pottery, dating from the Late Bronze Age to the La Tène period, was excavated. Due to its elevated nature and lack of evidence for habitation, the structure has been interpreted as a ritual site used across generations. The study of these sites contributes to broader discussions on the role of upland cult sites in prehistoric societies. While Sv. Križ represents a ritual space integrated within a settlement, Oštrc exemplifies the use of a remote, elevated location for ritual practices. Both sites were in use for several centuries, reinforcing collective memory and the sacralization of the landscape. These sites raise critical questions regarding the relationship between natural landscapes and ritual behavior and how they were maintained over time.

**331. BETWEEN DEVOTION AND RITUAL: DOG SACRIFICE IN ANCIENT ITALIC AND MESOAMERICAN UPLAND-SANCTUARIES**

**Contribution format:** Oral  
**Contribution authors:** Laura Sarli (Universität Trier)

Dog sacrifice has been interpreted in various ways, including its association with chthonic deities linked to procreation and growth or as a symbol of protection over something valuable (De Grossi Mazzorin 2008). The myth of the underworld-related dog appears across various Indo-European traditions. Literary and archaeological evidence confirms that dogs were sacrificed to various deities, particularly female deities of fertility and rebirth, such as Genita Mana or Hecate. Literary sources referencing dog sacrifices include Plutarch’s Quaestiones Romanae, the Tabulae Iguvinae and Pliny’s Naturalis Historia. Evidence of such sacrifices has been found in Athens, Sardis (Asia Minor), Locri (Magna Graecia), Pyrgi (Etruria), Monte Ingino e Monte Ansciano (Gubbio, Umbria), as well as material artifacts like the acroterial group from the acropolis of Veio (VI century BC), which depicts a dog and its master, likely tied to domestic cult practices (Bartoloni 2011; Piccioni 2020). Iconographic and archaeological evidence highlights the dog’s symbolic role in Mesoamerican everyday life and religion, where it was linked to death, destruction, earth, and fire. Dogs served as messengers to the life after death, a food source, in rituals, in hunting and companionship. Archaeological records show fluctuations in dog remains connected to Mayan pyramid-shaped temples symbolising mountains, with high numbers in the Preclassic period (2000 BCE–250 CE), a decline in the Classic period (250–900 CE), and a resurgence in the Postclassic period (900–1539 CE) at sites like Mayapan (Yucatan) (Nunez-Cortes 2022). This study examines literary sources and archaeological evidence for dog sacrifice at upland sanctuaries in the Italic world, exploring its significance in both public and domestic contexts. It also considers the role of dog sacrifice in the Mayan world, particularly in relation to religious practices and pyramid temples.

**1156. ON THE VERY HIGHEST POINT – SANCTUARIES ON MOUNTAINTOPS IN CENTRAL ITALY**

**Contribution format:** Oral  
**Contribution authors:** Marion Bolder-Boos (Department of Ancient Studies, University of Mainz)

Upland sanctuaries are a well-known phenomenon in ancient Central Italy. The sanctuary of Jupiter Latiaris situated on the summit of Monte Cavo is a particularly famous one. Initially a cult place of the Latin League which the Romans eventually took over, it was the centre of the so-called Feriae Latinae, the festival in honour of Latin Jupiter, which took place in spring and autumn each year. Other mountaintops, such as the Monte Sant’Angelo at Terracina or the Monte Tifata near Capua, were also the home of important cult places. The sites often commanded a broad view of the surrounding territory and could in turn be seen from afar. At the same time, getting to these cult sites, either individually or in the context of festivities, could prove difficult, as their elevated position made the walk there strenuous, especially during the summer months. Also, while some of them seem to have been closely connected with a nearby town, others were situated a long way from any settlement, raising the question what community took care of the place and how and by whom rituals were carried out. The aim of the proposed paper is to take a closer look at the cult sites set in these exceptional surroundings, their architectural remains, and the artefacts recovered from them to filter out how these sanctuaries may have been organised, who frequented them, and how they were incorporated in the wider religious and social context of central Italian communities.

**1049. SACRED HEIGHTS AND TIMELESS WORSHIP: RITUAL PRACTICES AND RELIGIOUS CONTINUITY IN GREEK MOUNTAIN SANCTUARIES**

**Contribution format:** Oral  
**Contribution authors:** Cynthia Marti (University of Marburg)

From prehistoric times onward, especially during the Bronze Age, people have been seeking high-altitude locations for ritual purposes, showing that religious activities were not limited to sanctuaries in the lowlands and urban centers but also took place in the remote heights of mountain peaks. Since large parts of Greece consist of mountainous regions, mountains were not only of economic and social significance but also served as sites for sanctuaries, transforming them into sacred landscapes and places of communication with deities. Moreover, mountains played a crucial role in ancient myths and were often depicted as imagined landscapes inhabited by deities and mythical creatures. This paper aims to explore ritual behavior and cult practices from the Bronze Age to antiquity at Mt. Arachnaion and Mt. Lykaion on the Peloponnese. The perception of mountains as sacred spaces raises questions about the interaction between humans and their environment in these remote areas on the periphery of the polis. Within these sanctuaries, both natural elements—such as altitude, visibility, and vegetation—and man-made structures—including temples, altars, and temenos —contribute to the sacred atmosphere. To provide insight into how ancient communities utilized elevated landscapes for ritual practices, a multi-methodological approach is applied, analyzing both archaeological and literary evidence while also considering the surrounding landscape to integrate the sanctuary into a broader network. Mt. Arachnaion and Mt. Lykaion are two of many peak sanctuaries where Zeus was worshipped, but they are among the few that have been used as sanctuaries since the Mycenaean period. Evidence of religious activity persists to this day, visible in the chapels and shrines dedicated to the prophet Elijah (Profitis Ilias), the patron saint of mountains. These two case studies examine the religious continuity and significance of mountain summits as sacred places, illustrating a timeless phenomenon that endures even through religious transformations.

**122. DIVINE NATURE: THE UPLAND SANCTUARIES OF ATTICA AND ARCADIA**

**Contribution format:** Oral  
**Contribution authors:** Aura Piccioni (Universität Trier)

Upland sanctuaries of Attica and Arcadia played a pivotal role in ancient religious beliefs. The cults associated with these locations, especially those in Arcadia, are closely linked to natural phenomena and the involvement of diverse social groups. This played a pivotal role in shaping the religious significance of a sanctuary and a divine figure. My habilitation project aims to examine upland sanctuaries of Attica and the surrounding regions to identify a pattern of development embedded within a broader urbanization process. A micro- and macroscopic method, as well as an emic perspective, is employed in the collection of upland sanctuaries. Distinctive elements of various kinds of landscapes, such sanctuaries constitute the focal point of worship in this context, prompting human minds to seek divine inspiration. This phenomenon can frequently be attributed to mythological explanations or, on occasion, to the intrinsic shape of the mounds themselves, which may evoke associations with fertility (Stevens 2023, 37-38). However, they are essentially considered sacred due to their elevated position, their distinct separation from the surrounding landscape, and their perceived function as a vertical entity (cf. Stevens 2023, 46-47, with relevant literature; see also the concept of verticality in other cultural contexts: Dal Zovo 2023, 55-56). Additionally, deities such as Apollo can be associated with the stewardship of nature, albeit always subordinate to the needs of humans; for instance, in Attica, he was venerated as Proopsios, which Smith and Lowry (1954, 10) interpreted as a protector of herds.

**880. SUPPORT YOUR LOCAL STORM-GOD: HYMETTOS, PARNES, AND THE DYNAMICS OF RITUAL ON ATTIC MOUNTAINTOPS**

**Contribution format:** Oral  
**Contribution authors:** Alexis Belis (Metropolitan Museum of Art)

The mountaintops of Attica have been well traversed in both antiquity and modern times, revealing scattered remains of ritual activity on numerous heights across the region. The highest peaks, Hymettos and Parnes, had sanctuaries on their summits as early as the tenth century BCE that shared several common features. Both were dedicated to Zeus specifically in his capacity as a storm-god, worshipped under the exclusively Attic epithets Semios and Semaleos (“god of weather-signs”), and seem to have served the agricultural populations of the region. The archaeological remains indicate that activities at the sites centered on burnt animal sacrifice and ritual drinking and dining. Finally, both peaks marked the borders of the Athenian plain—Hymettos dividing it from the Mesogeia plain to the east, Parnes separating Attica from Boeotia to the north. Despite their lofty siting, shared deity, comparable religious rituals, and close proximity, however, the character of the sites and the dedications offered were markedly different. Excavations on Hymettos uncovered a votive deposit containing hundreds of locally made ceramic vessels and fragments associated with a modest stone altar. The dedications on Parnes, site



of a monumental ash altar, included a wide variety of objects in different materials, including terracotta, bronze, and iron, some produced in regions outside Attica. This paper examines the relationship between the upland sanctuaries on Hymettos and Parnes and the surrounding communities, the motivations behind the dedication of different votives and altar types, and the ways in which the two sites fit within the broader context of mountaintop sanctuaries in Attica, and in Greece more broadly. It may be that both originated in response to local circumstances in Attica, but that the sanctuary on Parnes, despite being relatively inaccessible from the north, eventually took on the character of an interregional sanctuary that served multiple communities and functions.

**1042. MOUNTAINS AND TERRACED SANCTUARIES IN THE HELLENISTIC WEST: A CASE STUDY OF THE SANCTUARY OF FORTUNA PRIMIGENIA IN PRAENESTE**

**Contribution format:** Oral  
**Contribution authors:** Luzie Jofer (German Archaeological Institute | University of Munich)

Terraced sanctuaries from the Hellenistic period are commonly located on mountains. While this has traditionally been attributed to the desire for panoramic views, this explanation does not fully account for sanctuaries in less prominent locations of the mountain. Their placement may thus be rather influenced by cultic, ritual, and socio-political considerations. In my dissertation, I explore the relationship between mountains and terraced sanctuaries in the Western Mediterranean, focusing on the following questions: - Can earlier cult sites on the mountain be identified, and how are they integrated into the sanctuary architecture? - How are the town and the sanctuary connected, and what did the processional routes look like? - What cultic, ritual, and socio-political functions do terraced sanctuaries serve, and can these be identified in specific examples? In line with the objectives of Session #26 – “Empowering Heights,” which closely align with my research, I aim to examine the example of the Sanctuary of Fortuna Primigenia in Praeneste. This sanctuary not only highlights the presence and architectural emphasis on the mountain’s natural features, previously regarded as “sacred” places, but also demonstrates their integration into a monumental complex designed in accordance with Hellenistic architectural principles. Directly connected to the city, the sanctuary featured processional routes leading to the “sacred” places, while establishing a connection with the landscape through visual axes that aligned the structure with its surroundings. Furthermore, the monumental scale and strategic location emphasize its role as a symbol of financial power. In conclusion, the Sanctuary of Fortuna Primigenia in Praeneste offers a case study that enhances our understanding of the multifaceted relationship between cultic practices, architectural design, and socio-political power in the context of terraced sanctuaries on mountains, shedding new light on the cultural and ritual dynamics of the Western Mediterranean during the Hellenistic period.

**2012. CHARACTERISTICS AND FUNCTIONS OF THE UPLAND SANCTUARIES OF UMBRIA, C. 525-290 BCE: A REGIONAL SURVEY**

**Contribution format:** Oral  
**Contribution authors:** Mirjam Von Bechtolsheim (The Open University)

This paper discusses the characteristics and functions of Archaic and Classical (‘pre-Roman’) upland sanctuaries in the region of Umbria (Italy). This region boasts a high concentration of such sanctuaries, that is of archaeological sites in elevated locations characterised by accumulations of pre-Roman votive objects (mainly small anthropomorphic and zoomorphic bronze figurines). These sites and the associated materials form a conspicuous proportion of the overall archaeological record of the religious activities (other than funerary) in this region and period, indicating their significance to the people who established and frequented them. While many of the Umbrian upland sanctuaries feature prominently in recent scholarship on this region and period (e.g. in Zapelloni Pavia 2024; Manconi 2018; Amann 2015; Gherardi 2014; Amann 2011; Bonomi Ponzi 2010), the large number of sites and their complex and frequently problematic excavation and publication histories have precluded detailed analyses of their regional functions and significance. This paper presents the results of a systematic investigation of the region’s documented upland sanctuaries, carried out as part of a recently submitted doctoral research project. It lays out their spatial distribution — both in relation to the region’s natural landscape features and coeval settlements —, built structures, and finds assemblages. This information will be used to reconstruct as far as possible the form and potential function of the activities (religious or otherwise) that took place at these sites. This, then, may form the basis on which to discuss these sanctuaries’ religious, as well as potential social, economic, and/or political functions.

**302. RITUALS ON THE PEAKS: THE ENDURING UMBRIAN RELIGIOUS IDENTITY IN GUBBIO AMID ROMAN EXPANSION**

**Contribution format:** Oral  
**Contribution authors:** Marianna Negro (University of Cambridge)

The ritual landscape of Gubbio showcases the continuity of Umbrian sacral practices from the Bronze Age through

the Roman period. The intervisibility of mountain peaks indicates a deliberate ritualisation of the territory, deeply embedded in Umbrian cultural identity. This practice is exemplified by the deposition of schematic bronze votive figurines at high-altitude sites, including Monte d’Ansciano Monte Ingino and Monte Loreto, a tradition typical of the Iron Age. Despite Roman political and cultural dominance, ritual activities at these sites continued in a hybridised form rather than being replaced by Roman religious structures. Excavations at Monte d’Ansciano revealed both Umbrian votive figurines and Roman coins, indicating the adaptation, rather than abandonment, of local rituals. The lack of monumental Roman sanctuaries at these sites further emphasizes the persistence of distinctively Umbrian religious practices. The Gubbio Survey (1983–1987) and GIS analyses of pottery and artifact distributions further illuminate the adaptation of Umbrian rituals into the Roman period. Roman terracotta figurines found in rural landscapes, particularly at the lower slopes of Monte d’Ansciano, suggest that ritual practices continued outside official Roman religious frameworks. This continuity is not merely a vestige of the past but reflects a form of cultural resilience, possibly as passive resistance to Roman religious imposition. The case of Monte Loreto, where both Umbrian bronze and Roman terracotta votive figurines were found, exemplifies the gradual transformation into a hybridised sacred space. Additionally, the Iguvine Tables, with their inscribed rituals in both Umbrian/Etruscan and Latin, provide further textual evidence of this fusion. Ultimately, Gubbio’s ritual landscape highlights the resilience of Umbrian religious practices, which endured and adapted within the broader Roman framework, demonstrating cultural continuity amid Roman expansion.

**413. HILLTOP SANCTUARIES AS NAVIGATIONAL MARKERS ON THE COASTS OF HISPANIA CITERIOR**

**Contribution format:** Oral  
**Contribution authors:** Marcos Esteban Barbieri (University of Alicante)

Along the coast of Hispania Citerior are located several hilltop sanctuaries which played a key role as visual landmarks in the landscape and especially from the sea. Beyond their religious function, their strategic location made them essential for maritime navigation and territorial organization. Their role varied depending on their setting, allowing a distinction between those located in isolated coastal areas and those situated in urban ports. In the case of rural sanctuaries, their visibility from the sea made them crucial navigational markers in a coastline often lacking clear references. Additionally, these sites not only structured the inland territory but may have also played an economic role related to the management of marine resources. On the other hand, sanctuaries located in urban ports dominated the harbor scene, visually presiding over the city skyline. These spaces served as symbolic reference points, marking the arrival and departure of sailors and reinforcing the city’s role in maritime trade. At the same time, they legitimized local power and projected the protection of deities over port activities. This communication explores the dual perspective of these sanctuaries, emphasizing their role in navigation and in the structuring of the coastal territory during the Roman period.

**2452. ARTEMIS’ SANCTUARY AT BRAURON: THE SACRED PLACE OF MARBLE CHILDREN**

**Contribution format:** Poster  
**Contribution authors:** Justyna Dworniak (Piotrków Academy | University of Łódź)

The Sanctuary of Artemis at Brauron, located on the eastern coast of Attica in Greece, has a unique status among Greek sacred sites. The temple dedicated to Artemis, the goddess of hunting, wilderness, and motherhood, functioned as a central site for religious worship and pilgrimage from at least the 6th century BCE. The Sanctuary of Artemis at Brauron is a significant place in ancient Greek religious and cultural history, renowned for its distinctive relationship with marble sculptures of children, mostly depicting teenage ladies. For centuries, scholars have pondered the significance of these marble young children within the religious context of the sanctuary. A prevailing explanation is that these things served as votive offerings, tangible expressions of prayer and reverence for Artemis, the revered goddess of hunting and protector of young ladies. These marble sculptures embody the aspirations and desires of worshipers seeking the goddess’s benevolent favor for the welfare and future of their offspring, signifying innocence and purity. Nevertheless, the allure of the marble newborns extends beyond mere religious meaning. Some academics propose that they participated in the ceremonial ceremonies of the sanctuary, namely in the transition of young girls into women. These sculptures likely represented the ideals of maidenhood under Artemis’s patronage, serving as visual embodiments of the virtues and qualities expected of young maidens in ancient Greek society. In my presentation, I will examine the importance and role of the marble children in the Brauron sanctuary. I will examine various interpretations of these enigmatic artworks using archaeological data, historical accounts, and similarities to other sacred locations.



28 MATERIALITY OF STUDYING AND PRESENTING ANCIENT RELIGION IN MUSEUMS AND OTHER SECONDARY SETTINGS

Session theme: 1. On artefacts and beyond  
Session format: Regular session  
Session keywords: materiality of religion, archaeological artefacts in secondary settings, research strategies & processes, perceptions of archaeological objects, museum outreach, museum collection curation & history  
Session organisers: Tomasz Dziurdzik (National Museum in Warsaw) – Ljubica Perinić (Croatian Academy of Sciences and Arts) – Ivan Radman-Livaja (Archaeological Museum in Zagreb) – Adrianna Gizińska (University of Warsaw)

SESSION ABSTRACT

The turn towards materiality has been a defining feature in some models/directions of the study of ancient religions in recent years. We want to adopt a wider perspective – one that includes the perspectives of researchers, whether they come from traditionalist or theoretical models, and of the public, looking at how the materiality of ancient religious objects preserved and presented in secondary settings (museums, galleries, archaeological parks etc.) influences the modern understanding of ancient religious realities. Artefacts in those spaces are detached from their archaeological context, which may or may not be partly preserved in documentation, depending on their history. In many cases this increases the role that their materiality holds in reconstructing their original roles. In turn, those objects acquire secondary contexts, which influence the way in which they can be accessed, studied, and perceived. This happens e.g. through curation according to principles very different from ancient religious realities – such as storage and display according to the material (e.g. lapidaria) or divisions between various departments. The choice of items on display is often based on the perception of their artistic quality and beauty, rather than the sacral value attributed to them by their original users. Conservation also may add new layers (or sometimes remove old ones) of complexity to the materiality of such objects. All of this also shapes stories and narratives presented in public institutions, stimulating the public understanding of the issues they illustrate. We welcome contributions on topics including, but not limited, to: · research into the materiality of religious objects in museum collections, including those that lack archaeological context, · the relations between study of artefacts and study of religion, · issues of presentation of ancient religions to the public through material remains, · how materiality of religious objects shapes our understanding of past realities.

CONTRIBUTION ABSTRACTS

1423. WHEN MAN BECOMES MATERIAL: BELIEFS AND PRACTICES IN THE IRON AGE NORTH SEA ZONE

Contribution format: Oral  
Contribution authors: Leila Joensson (The University of Vienna)

This paper is based on the cross-disciplinary PhD-project encompassing archaeology, history of religions and philosophy. The project revolves around ritual practices 400 BC- AD 100 concerning violence before deposition in the North Sea Zone. The study aims to clarify if archaeological data and myths from ‘Celtic’ and ‘Germanic’ Iron Age societies in the North Sea Zone show similarities in beliefs expressed in ritual practices. Archaeological data presents bodies and objects that were destroyed before deposition. Perhaps the Iron Age societies did not distinguish between man and material and vice versa? The idea of no distinction between animate and inanimate brings forward a new perspective on violence, sacrifice and value potentially linked to belief. The study will focus on the underlying belief system by means of a comparative study of (later attested) mythologies from the North Sea Zone, theories on Embodied Knowledge and the ontological aspects of ritual practice transcending dualistic thinking. The theoretical framework is supported by the archaeological data presenting four comparative case studies of the North Sea Zone with a focus on strangulation before deposition in bogs. Two of these bog bodies are exhibited in museums and acts as storytellers of the past but can we trust the existing interpretation of their fate/faith?

120. STRANGER IN A STRANGE LAND: MATERIALITY AND UNDERSTANDING ANCIENT RELIGIOUS ARTEFACTS IN THE NATIONAL MUSEUM IN WARSAW

Contribution format: Oral  
Contribution authors: Tomasz Dziurdzik (National Museum in Warsaw)

Polish culture has an interesting relation with Graeco-Roman past, in that it is characterised by a surprisingly strong sense of belonging and continuity. But the extent of actual contact with ancient objects – and their understanding – was more akin to distant familiarity, especially as access to material remains of Antiquity was always

limited due to lack of any geographic overlap with those cultures. This is especially true in relation to ancient religious artefacts that made their way to Poland in 18th-20th century: they were vestiges of different realities, often already far removed from their background when they arrived to become parts of collections. Combined with the difficult modern history of the country, which meant the loss of much of the documentation, this often wholly obscured their original context. In their new, secondary contexts, they were (and still are) viewed in ways that were mostly dependant on their materiality. This combines with the fact that the focus of past and present curation of museum collections and displays was often mostly on the visual aspects of said objects as “works of art” rather than on their religious meanings. This paper will present several case studies of such artefacts in the Collection of Ancient Art in the National Museum in Warsaw, focusing on their materiality and how it influenced the objects’ biographies, study and presentation. It will be analysed how materiality determined which objects were acquired, their curation and study, as well as how it shaped public understandings of ancient religions. It will be argued that for many of those artefacts that are “strangers in a strange land”, the analyses of their materiality continue to be the most valuable way to make sure they are not lost and far from home but rather preserved in time for all to see.

1292. “OVERWHELMING AND RATHER PECULIAR”: CONTEMPORARY SPIRITUAL VISITOR EXPERIENCES OF MUSEUM DISPLAYS OF ROMANO-BRITISH RELIGION

Contribution format: Oral  
Contribution authors: Antony Lee (National Museums Scotland)

Museums are increasingly recognised as places which are as emotive and experiential as they are educational, with some museums deliberately creating galleries and displays to elicit such responses from their visitors. Yet the Roman world, and specifically its religious landscape, have not yet been a focus of these approaches. Recent scholarship into Roman religion has increasingly repositioned it as a situationally-dynamic, experiential and embodied phenomenon, with material culture constitutive of, rather than merely demonstrative of, internalised beliefs. However, traditional perceptions of it as a rather dry and emotionless civic duty persist, and ancient religion is similarly often assumed to be viewed by museum visitors through a dispassionate archaeological or art-historical lens. Despite presumptions that the deities of Roman Britain are ‘dead’, ancient religion still forms part of the spiritual landscape of many people. This paper explores how some museum visitors, especially contemporary Neo-Pagans and Wiccans, not only draw inspiration from prehistoric and Roman religious practices, motifs and deities, but encounter them in unique ways in museum galleries. Studies of ‘material religion’ have observed religious acts conducted in exhibitions devoted to more mainstream contemporary faiths, yet emotive, numinous and deeply personal experiences with ancient religious objects generally pass unnoticed by museums. This paper explores testimonial evidence for these often hidden and intensely personal gallery experiences in British museums, and considers how the materiality of objects is both central to the experiences evoked yet also restricted by glass-case displays and typologically-driven interpretative schemata. It argues that opportunities exist for museums to explore new methodologies for displaying and interpreting Roman religious objects; challenging all visitors to move beyond the passive art-historical gaze to consider these collections from differing ontological perspectives in which they retain traces of their numinous power.

1022. CONSOLIDATING DESIRES AND REALITY – ORGANIZING MILITARY VOTIVES’ EXHIBITION

Contribution format: Oral  
Contribution authors: Ljubica Perinic (Croatian Academy of Sciences and Arts) – Ivan Radman-Livaja (Archaeological Museum in Zagreb)

Votive inscriptions were a common practice in the Roman world, serving as a means for individuals to express gratitude for services rendered, devotion, or requests to deities. In the context of the Roman military, these inscriptions often reflected the religious and spiritual dimensions of soldiers’ lives, as well as their personal and collective identities. Roman soldiers, officers, and veterans frequently dedicated votive offerings to gods and goddesses for protection in battle, successful campaigns, safe returns, or recovery from illness. These dedications on stone altars, plaques, or statues, and placed in temples, shrines, inside and outside military camps. While organizing an exhibition on Roman military votive inscriptions, as we did in 2017, presents numerous challenges, careful planning, collaboration, and creativity can overcome some of these obstacles. By addressing these issues proactively, the exhibition can become a compelling and memorable experience that brings the ancient Roman world to life for modern audiences. Not only that, it also brings new scholarly challenges to organizers or professional visitors.

65. THE ALTARS FROM ISIS’ SANCTUARY IN CASKA AT THE ISLAND OF PAG

Contribution format: Oral  
Contribution authors: Inga Vilogorac Brcic (Faculty of Humanities and Social Sciences, University of Zagreb)

Caska bay at the island of Pag (Croatia) boasts the earliest known evidence of the cult of Isis in the Eastern Adriatic.



Four altars with inscriptions dedicated to this originally Egyptian goddess were erected in the first quarter of the 1st century AD by Calpurnia, a member of the aristocratic family of Calpurnii Pisones. Her father owned a maritime villa – a coastal estate – in present-day Caska, consisting not only of the luxurious residential buildings (yet to be discovered), but also of its own food production facilities. Having inherited this landed property from her father, Calpurnia worshipped there the goddess Isis and other deities of her circle. In this paper I will follow the trail of Calpurnia’s altars: the circumstances of their discovery, their current state and a new way of presenting them in the Novalja City Museum, but also in the area of the private sanctuary at the Calpurnia’s estate, to which they belonged.

**488. LOST CONTEXTS, PRESERVED MONUMENTS: THE ALTARS ERECTED BY THE MAGISTRI VICI FROM LOWER MOESIA**

**Contribution format:** Oral  
**Contribution authors:** Adrianna Gizinska (University of Warsaw)

Several altars erected by *magistri vici* have been discovered in Lower Moesia, with the earliest known monuments dating back to the reign of Antoninus Pius. The abundance of epigraphic and archaeological evidence related to *vici* in the region of Dobrudja highlights the unique character of Lower Moesia in terms of settlement organization. The diversity of rural administrative structures in this area reflects the complex ethnic composition of the province. Most of these monuments have been discovered incidentally, often as reused material in late antique constructions. Consequently, the precise locations of the original rural sites remain largely hypothetical. Nevertheless, the inscriptions retain significant documentary value, serving as a crucial source for research on the administrative organization of rural settlements, population structure, religious practices, and broader socio-cultural phenomena. A key aspect of this study is the emergence of a new religious practice in Lower Moesia, which involved the annual dedication of altars primarily to Jupiter *pro salute* of the emperors. Particular attention is paid to inscriptions dated to the Severan dynasty, analysing their significance in the context of the practices of the imperial cult and local religious traditions. This presentation focuses on the materiality of these altars and the implications of their detachment from their original functional context. The analysis of inscriptions and the monuments themselves allows for an attempt to reconstruct their original role in local cultic practices. In this context, a crucial question arises: how do the materiality of these objects and their secondary placement shape our understanding of the religious life of provincial communities?

**2146. ANTLER COMBS FROM SERBIAN MUSEUM COLLECTIONS AS THE MATERIAL REMAINS OF GERMANIC BELIEFS**

**Contribution format:** Oral  
**Contribution authors:** Eleonora Pawlikowska (Independent Researcher)

The arrival of Germanic peoples in Upper Moesia brought about a significant transformation in the assemblage of grave offerings accompanying the deceased. Prior to those population changes, funerary goods included a diverse range of cosmetic items, however, in a relatively short time it was largely replaced by a single, highly distinctive category: antler combs. While these artifacts, emblematic of Germanic society, became a ubiquitous feature in burial contexts, the choice of the raw material and the frequent appearance of specific decorative motifs— associated with solar symbolism—indicate that their function extended far beyond the purely utilitarian. The presence of combs in graves also suggests their use when preparing the deceased for the last journey, as they are associated with purification and bringing order. Solar motifs, widely linked to notions of life and rebirth, may have imbued these objects with additional protective and symbolic power to guard against malevolent forces. Moreover, the antlers shed and grown every year embodied not only the vitality and strength of the animal, transferred to the user of the comb made from it, but—which is particularly vivid in the sepulchral context—it represented the natural cycles of dying and renewal. Since the exact position of the examined artifacts in relation to the body and other inventory items is often unknown, their materiality serves as the primary source of insight into the role of combs. The adoption of Germanic burial practices and symbolic motifs in the Middle Danube region provides a glimpse into the cultural interactions between incoming barbarian groups and the local population.

**1823. BUILDING INCLUSIVE NARRATIVES: DISPLAYING GANDHARA ART IN MODERN MUSEUMS**

**Contribution format:** Oral  
**Contribution authors:** Bartłomiej Zurawski (University of Warsaw | National Museum in Warsaw)

This paper examines the challenges and opportunities of presenting Gandharan art in modern museums that embrace innovative narrative trends, questioning traditional geographical divisions in art history. Gandharan Buddhist art, characterized by its Greco-Roman stylistic influence, embodies a rich cross-cultural heritage that defies simple categorization. Employing a postcolonial perspective, the study reveals that conventional East–West dichotomies, which stem from 19th-century Orientalism, fall short of capturing the complex dynamics of

artistic production in Gandhara. Central to the argument is the recognition of Gandharan art as an integral part of the heritage of Late Antiquity. The paper advocates for a reimagining of museum displays that transcends rigid classifications, urging the integration of Gandharan art into a broader, more inclusive dialogue. Notably, while research into the Greco-Roman influences on Gandharan art yields valuable insights, it must not obscure the essential task of articulating its Buddhist heritage. This paper explores how museum exhibitions can effectively showcase both the distinctive stylistic features and the profound religious context of Gandharan art, advocating for innovative exhibition strategies that build inclusive narratives. By emphasizing both Buddhist themes and Greco-Roman stylistic influences, these strategies provide a more comprehensive framework for exhibiting Gandharan art, transcending artificial regional divisions and ensuring that the Buddhist elements remain central to its interpretation. At the same time, it ensures that the Buddhist elements remain central to the interpretation of this unique cultural legacy.

**809. BYZANTINE MONUMENTS IN MUSEUMS: TRANSFER AND LOSS OF SACRED CONTEXT**

**Contribution format:** Oral  
**Contribution authors:** Hanna Treda (University of Warsaw) – Evelina Kachynska (Institute of Archaeology and Ethnology, Polish Academy of Sciences)

As testimonies to the long-standing tradition and culture of Eastern Christianity, Byzantine monuments are incredibly valuable resources in museum collections worldwide. Often relocated from their original, natural contexts—such as churches, monasteries, or other places of worship—into museums, they change function, symbolism, and reception. Their presence in museum spaces allows for preservation and broader accessibility, but it also involves the loss of the original liturgical and sacred context that was key to their meaning. This relocation is influenced by a range of factors, including the specifics of conservation work, as well as the principles governing heritage protection. Byzantine churches were unique and complex sacred spaces created from various elements, such as mosaic and painted decorations, liturgical textiles, and even more specific features like the interplay of light, scents, and sounds. The materials used to shape these spaces were also significant, including the different types of marble, each with distinct color variations, contributing to the overall sacred atmosphere. The aim of our presentation is to analyze the process of transferring Byzantine monuments from their natural storage locations to museums and the consequences of this relocation. The transfer from their original, natural contexts—such as churches, monasteries, or other places of worship—alters their functions, symbolism, and modes of reception. While their presence in museums ensures protection and wider accessibility, it also leads to the loss of the liturgical and sacred context that was essential for their significance. We would like to explore how this change in context affects the interpretation of these works and discuss the broader implications of displaying sacred Byzantine objects outside their original settings. Specific examples of Byzantine artifacts that have gained new meanings and symbolism in museums, as well as those that have retained a close connection to their original context despite relocation, also will be highlighted.

**1463. REACTIVATING ANCIENT SACRED SPACES AND CONTEMPORARY RELIGIOUS USE OF ARCHAEOLOGICAL SITES**

**Contribution format:** Oral  
**Contribution authors:** Anja Mlakar (University of Maribor, Faculty of Tourism | Institute IRRIS)

This contribution will examine the return of religious practices to some Late Antique and Early Medieval Christian archaeological sites in Slovenia, taking into account how their physical remains contribute to their renewed function as sacred spaces. Once abandoned for centuries, some of these sites are now being re-used for religious practice. Their revival as spaces of worship presents an interesting case for researching the relationship between archaeological heritage and contemporary religious life. This contribution will therefore consider how material remains mediate between the archaeological past and contemporary ritual use. It will explore how materiality shapes interpretations of authenticity, continuity, and sacredness in heritage discourse and religious practice. The contribution will also highlight how religious, and heritage discourses interact, and how the use of these spaces today reflects broader cultural and historical processes. The study will also consider how different stakeholders, including religious communities and heritage professionals engage with these spaces and shaping their contemporary significance.



30 THE FOUNDATION OF KYIV AND THE TERRITORIES OF THE SOUTHERN RUS. CURRENT ARCHAEOLOGICAL AND HISTORICAL RESEARCH AND ITS RECEPTION

Session theme: 6. Intertwining archaeology, heritage, and museums  
Session format: Regular session  
Session keywords: Ukraine, Kyiv, Medieval, Archaeology, History, Cultural Heritage  
Session organisers: David Hill (Norwegian Institute of Cultural Heritage Research) – Sergiy Taranenko (National Reserve “Kyiv-Pechersk Lavra”)

SESSION ABSTRACT

From its foundation and development in the ninth century and through its evolution as the centre of a network of principalities the success of the Kyivan Rus state can in part be attributed to a multi-cultural and inclusive atmosphere that created a wealthy and powerful city that at its greatest extent controlled an area stretching from the White to the Black Seas. The Viking and Baltic connection, strong contacts with Constantinople and neighbouring Steppe cultures, all gave a mufti-cultural dimension to Kyiv’s development. St Sofia Cathedral from the first half of the eleventh century was the largest Byzantine church outside of Constantinople, the Christianization process and the introduction of literacy, large-scale international trade, rapid urban growth and artistic evolution have all left a rich archaeological and historical record. Ultimately the diverse cultural impulses that made up Kiyvan society fused together to create a powerful East Slavic state at the periphery of Europe. For geo-political reasons Kyiv’s medieval heritage was downplayed and side-lined in the nineteenth and twentieth centuries. The ongoing war in Ukraine sees Kyivan heritage at the forefront of a renaissance where the themes of the past again resonate within a reenergized Ukrainian national identity. This session will look at the archaeology and history of the Kyivan state within a frame of globalization, mobility, assimilation, and state formation. Additionally, the session will look at how these themes have come to the fore in post-Maidan Ukraine and during the ongoing war. What role does the heritage of the Medieval Kyiv state play in Ukraine today? How has research been influenced by the current conflict. How is the reception of the cultural legacy activated? What role can it play in the healing of conflict trauma and in building a cohesive national identity for all?

CONTRIBUTION ABSTRACTS

624. RUS, SLAVS AND VARANGIANS - MOBILITY, ASSIMILATION, AND STATE FORMATION

Contribution format: Oral  
Contribution authors: David Hill (Norwegian Institute of Cultural Heritage Research)

The Rus as an identifiable group are visible within documentary sources and within the archaeological record of the Dnieper basin from the ninth and tenth centuries, and represent the eastern dimension of the so-called ‘Viking expansion’. It is normal to identify a site as being Rus through the presence of objects of a Scandinavian type, site typology and topographic context. There is a general correlation between the sum total of the documentary and archaeological sources, though considerable discussion remains on details. Scandinavian participation in the foundation and development of the Kyivan Rus state has led to a controversy from ‘anti-Normanist’ nationalist models that sought to question the scale of the role of Scandinavians in state formation. The processes of assimilation of Scandinavians within Slavic society tempers the nationalist discussion somewhat. Mobility, expansion and economic opportunity in the ninth century formed the Rus. Scholars recognize today that Baltic, Slavic and other ethnic elements also made up a part of the mix. How do archaeological and historical data support each other? How have 19th and 20th political discussions influenced scholarship? Are we done with the anti-Normanist discussion or not? After the formation and development of Kyivan Rus a second wave of Scandinavian participation in the region occurred formed out of the lucrative military service at Constantinople from the eleventh century and use of Dnieper route from the Black Sea to the Baltic. The Rus and Varangians were mobile, fluid groups pursuing individual and collective interests which evolved to shifting situations. This presentation will frame the themes to be explored during this session and introduce the topography, terminology and chronology that will be discussed, and consider contemporary reception and issues of heritage management.

34. WHAT EARLY MEDIEVAL HILLFORTS ALONG THE DNIPRO AND DESNA RIVERS TELL US ABOUT THE SCALE OF THE SCANDINAVIAN PRESENCE?

Contribution format: Oral  
Contribution authors: Alla Kurzenkova (British Academy Researcher-at-Risk Postdoctoral Fellow, University of Glasgow)

The network of Rus’ trading posts facilitated travel along the eastern trade routes, linking different regions. For Scandinavian groups, these river-linked hillforts functioned as key entry points into wider trade and migration

networks. They played a vital role in supporting the eastward movement of Viking expansion and influence, underlining their strategic importance in this wider context of the Viking movement. But how do we define the Scandinavian presence in these hillforts? The central focus of this investigation is the presence of artefacts of Scandinavian origin, or their local copies, which serve as physical evidence of the far-reaching impact of Scandinavian activity. The analysis is based on the archaeological evidence, which highlights the uneven distribution of Scandinavian artefacts in different hillforts, ranging from high-status artistic objects to utilitarian artefacts associated with trade and warfare cultures. A key question is the nature and extent of this influence: what can these artefacts tell us about these societies? Were all these artefacts ‘equally Scandinavian’, or do they represent different scales of influence and integration? Do these artefacts reflect a direct Scandinavian presence, indirect cultural exchange, or a blend of both. This study reassesses the Scandinavian presence along the Dnipro and Desna rivers by focusing on hillforts from the 9th to 12th centuries AD. By looking at the artefacts, the trade networks they imply, and the artistic influences they carry, the research aims to reveal the level of interaction and adaptation that defines this process. At the same time, the role and function of hillforts as both physical and social-economical sites within these trade river routes will be considered. Through this dual focus research seeks to provide a comprehensive picture of Scandinavian influence, which flows from the evidence of artefacts and outwards to the wider historical landscape.

310. TRADE, SETTLEMENT, AND INFLUENCE: RUS IN TENTH CENTURY CHERNIHIV REGION OF UKRAINE

Contribution format: Oral  
Contribution authors: Stepan Stepanenko (Leibniz-Zentrum für Archäologie - Zentrum für Baltische und Skandinavische Archäologie | CNRS UMR 8167 (Monde byzantin))

Shortly after arriving in Kyiv, the Rus began looking beyond the town and established new sites along contemporary trade routes. With navigation through the Dnieper rapids proving difficult in the early tenth century, the routes via the Desna and Siverskyi Donets rivers provided direct access to the markets of the Khazars, the Caliphate, and Byzantium, furnishing a desirable corridor for expansion. These pathways ran through what is now the Chernihiv region of Ukraine, where the Rus moved eastwards along the Desna, founding a series of settlements whose chronology, character, and inhabitants remain subjects of ongoing scholarly discussion. Earlier interpretations dated the beginnings of Rus influence to the ninth century, yet fresh examinations point to sustained, large-scale occupation materialising only in the tenth century, likely from its middle decades. Shestovytsya, the first and most prominent early site on the Desna route, epitomises this episodic pattern of settlement in the early tenth century. Furthermore, recently reassessed Islamic silver hoards, and nearby sites demonstrate a heightened influx of coinage in the latter half of the tenth century, underscoring the growing significance of Chernihiv rather than merely signalling conquest. Excavations at hillforts along the waterway reveal the Rus eventually expanded beyond the immediate Desna corridor, progressing from short-lived outposts to more stable strongholds. Intriguingly, early Rus contexts show limited evidence of Slavic involvement, implying that control was consolidated gradually through interconnected trade networks rather than by outright subjugation. Thus, the Rus penetration into these Slavic territories did not represent a sudden transformation but rather a protracted process of settlement, commerce, and interaction. Current evidence strongly suggests that a distinctly recognisable Rus polity in the Chernihiv area only emerged during the latter half of the tenth century.

770. POROSSYA – A KEY REGION FOR STUDYING CULTURAL TRANSITION AND ETHNIC INTERACTION DURING THE RUS’ PERIOD

Contribution format: Oral  
Contribution authors: Artem Borysov (Institute of Archaeology of the National Academy of Sciences of Ukraine)

Located south of Kyiv, Porossia is a significant area mentioned in historical chronicles. The formation and development of settlements in this part of the Principality of Kiyv occurred between two major settlement crises. The first crisis arose with the arrival of the Pechenegs, which led to the decline of Slavic settlements in the late 9th and 10th centuries. The region’s development during the Rus’ period ended with a catastrophic settlement crisis in the 1240s, tied to the Mongol invasion. Porossia serves as an important test region for examining various scientific questions in the fields of archaeology and ancient history, particularly regarding the development of human society as a whole. Here are some key issues to explore: 1. “The Functioning of Princely Power: This includes the construction of the outer echelon of fortifications for the defense system of princely Kyiv with the special linear fortification complex called “Zmiievi Valy” (Dragon Ramparts) at the end of the 10th century. 2. “Interaction Between Centers and Outskirts”: Examining how princely Kyiv interacted with the surrounding inhabited areas. 3. “Ethnic and Economic Interactions”: The region was settled by diverse population groups of different ethnic origins and economic practices that integrated into communities known as the “Porshany” and “Black Klobuks.” 4. “Settlement Patterns”: Investigating how the settlement patterns and economic activity evolved alongside its defensive functions. In less than a century, Porossia transformed into an important economic region within Rus. Overall, the Porossia of Rus’ times serves as a vast testing ground for studying a



wide range of issues related to the adaptations, interactions, and impacts of human communities within the context of both the natural environment and social ecotones.

**781. THE NEED TO LOOK CLOSER. ARCHAEOLOGICAL EXHIBITION “KYJIVAN RUS’. ORIGINS” AT THE NATIONAL MUSEUM OF LITHUANIA.**

**Contribution format:** Oral  
**Contribution authors:** Egle Zaveckiene – Rūta Kačkutė (National Museum of Lithuania)

For many years, the origins of Kyivan Rus’ were largely shaped by the Russian narrative, which emphasized the continuity of the Russian state with the Slavs at its core. However, this theory is no longer accepted by scholars. In collaboration with 17 institutions across Europe, we have created the archaeological exhibition Kyivan Rus’. Origins. This exhibition, grounded in archaeological research and authentic artifacts, reveals the establishment of new long-distance trade routes that led to the emergence of Kyivan Rus’. These processes involved both Slavic and non-Slavic groups, including Scandinavians, Balts, Finnic peoples, Greeks, and Turkic-speaking nomads. The exhibition highlights the gradual development of Kyivan Rus’ into a distinctive and unique culture. It also examines how this rich cultural legacy was reflected in Lithuania. Recent archaeological discoveries and our particular focus on the role of Baltic tribes, provide new insights into their participation in these transformative events. Traditionally, the Baltic tribes have been perceived as isolated, with little involvement in any processes in the region. However, the discovery of an 11th-century Baltic burial ground in Ostriv (Kiev region) near the river Ros in 2017 would suggest that existing archaeological material deserves closer examination. The presence of a burial site with the Baltic material found in the south of Kyivan Rus’ indicates that Baltic tribes were capable of long-distance travel. It is possible that Baltic warriors served as mercenaries in the armies of Kyivan Rus’ princes. This hypothesis could also explain the nomadic influences seen in Baltic horse-riding equipment from the 10th to 12th centuries, such as metal stirrups and bits. Written sources on the relations between Baltic tribes and Kyivan Rus’ are very scarce. As a result, archaeological finds remain the primary and most reliable source for the study of relations between Kyivan Rus’ and the Baltic tribes.

**1078. INSULAR CONNECTIVITY WITH KYIV AND BYZANTIUM IN THE LATE VIKING PERIOD BYZANTINE COINAGE ON GOTLAND, THE BALTIC SEA AND BEYOND**

**Contribution format:** Oral  
**Contribution authors:** Christoph Kilger (Dept. Archaeology, Ancient History and Conservation, Uppsala University, Campus Gotland)

Despite its location in the middle of the Baltic Sea and its physical separation from surrounding communities, the island of Gotland was highly interactive throughout its early history, sustaining a complex connectivity and a multiplicity of reference points. Interactions and personal eastern encounters with Kyiv and Byzantium and their elites are mentioned in runic inscriptions and written sources and are also tangible in material culture, particularly coinage. Notably, Byzantine silver coins and miliaresia are not evenly distributed across Scandinavia and the Baltic Sea but are clustered on the island of Gotland (523 out of 739 recorded specimens). In my presentation, I will argue that the evidence of Byzantine coinage can provide new insights into how contacts with the Kyivan Rus developed during the second half of the 10th and early 11th centuries. This distinctive distribution pattern indicates that Gotlandic networks had access to and controlled the circulation of Byzantine silver. From a theoretical and methodological perspective, Byzantine coinage offers a compelling case to explore aspects of insular and maritime connectivity, including considerations of time, distance, and space.

**1842. VESTFOLD, NORWAY - CONTACTS WITH THE RUS: A SNAPSHOT OF ISLAMIC COINAGE RECOVERED FROM VIKING CONTEXTS**

**Contribution format:** Oral  
**Contribution authors:** Vibeke Lia (Vestfold fylkeskommune)

In the county of Vestfold on the west side of the Oslofjord metal detectorists regularly find Islamic silver coinage from ploughed contexts. After a rough start some ten years ago, the metal detectorists now are more aware of the importance of delivering their finds according to Norwegian law. Through better cooperation and new national guidelines for best practices these finds are handed in to the county archaeologist and the Museum of Cultural History. Archaeologists needed to step up to meet a hoard of individuals who wanted to contribute, and work with a material that is a result of non-academic filtration. The new finds in many respects deviated from the earlier known material gathered from excavations. These new finds represent widespread contact between Vestfold and the Eastern world of the Rus through the late ninth and tenth century. Vestfold had a strong role in the Viking world, with the Oseberg, Borre and Gokstad ship burials and the Viking trading site of Kaupang. Besides these well-known sites stray finds of Islamic coinage from across the county show that there are many other sites demonstrating strong contact between Norway and the Rus territories. Among other archaeological

finds tied to the eastern trade routes are korneol-, rock crystal- and glass beads, animalistic jewellery and a sword chape with the falcon motif. This presentation will focus on management practices from Norway when dealing with metal detector clubs, their obligations their motivation and look at what the finds themselves tell us about society and mobility in Vestfold.

**1247. MONUMENTAL ARCHITECTURE OF KIEVAN RUS: THE FORMATION STAGE**

**Contribution format:** Oral  
**Contribution authors:** Olena Chernenko (University of Warsaw)

Until recently, the development of monumental architecture in Kievan Rus was viewed as a linear progression. Scholars traditionally traced its origins to the arrival of master builders from Constantinople in Kyiv in 989, who were invited to shape the city in the image of a Byzantine imperial capital. However, recent archaeological and architectural research has refined this understanding. It appears that the adoption of Byzantine construction traditions in Kievan Rus was initially influenced not by the imperial style but by provincial Byzantine architecture—specifically, the Balkan tradition (as seen in the construction of the Church of the Theotokos and palace complexes in Kyiv) and the Anatolian-Caucasian tradition (exemplified by the churches of Tmutarakan and Chernihiv). The foreign craftsmen invited to Rus had to adapt their familiar building techniques to local conditions and materials. This adaptation led to a series of innovations that played a decisive role in shaping monumental architecture. The further development of Kievan Rus architecture is closely linked to the ambitious building program of Yaroslav the Wise, which included the construction of Saint Sophia Cathedral, the Churches of Saint Irene and Saint George in Kyiv, and the Saint Sophia Cathedrals in Polotsk and Novgorod. Architects from the Constantinopolitan school participated in this program, resulting in a fusion of different traditions. During this period, structures were built in Rus that retained Byzantine architectural features but had no direct counterparts in Byzantine architecture. It is likely that all monuments of the “era of Yaroslav” can be considered both part of the broader Byzantine tradition and as uniquely belonging to the architectural heritage of Kievan Rus.

**410. KYIV PERCHERSK LAVRA - ‘CAVE MONASTERY’ COMPLEX. THE ORIGINS AND ROLE IN THE DEVELOPMENT OF MONASTIC SITES IN KYIVAN RUS**

**Contribution format:** Oral  
**Contribution authors:** Dmytro Pefits – Sergiy Taranenko (National Reserve “Kyiv-Pechersk Lavra”)

The Pechersk Monastery is one of the oldest monasteries on the territory of modern Ukraine — the first mention of it in a chronicle dates back to 1051. An extensive network of caves run underneath the monastery and churches, when the earliest ‘Varangian caves’ were dug is still an open question. Its emergence as a cave monastery did not depend on the will of the Kyiv princes, unlike five other suburban monasteries in Kyiv. It quickly became the largest and most famous religious centre and was transformed into a sacred one already in the princely era. After the capture of Kyiv by Batu Khan’s troops in 1240, the monastery continued to function and only confirmed its importance. It became a place of refuge for many Kyivans and inhabitants of the surrounding villages. This process eventually led to the formation of estates and sloboda, from which the town of Pechersk developed, a new urban formation centred on the monastery. The status of a privileged private town was repeatedly confirmed by royal charters in the 16th century. Contacts between Kyiv, the Byzantine world, and the numerous other monastic sites across the Rus were aided by religious networks where ideas and impulses were spread over long distances. This presentation will consider the role that Pechersk Lavra has in forging Rus society and spreading its reach across its large sphere of influence. The monastery’s early structures and their evolution will be considered with the frame of mobility and assimilation.

**678. RECENT ARCHAEOLOGICAL OBSERVATIONS FROM THE CATHEDRAL OF SAINT SOPHIA OF KYIV**

**Contribution format:** Oral  
**Contribution authors:** Tymur Bobrovskyy (The National Conservation Area “St. Sophia of Kyiv”)

The Saint Sophia Cathedral is a unique monument which represents the integration of Byzantine art and architecture during the early Christian period at Kyiv. Archaeological excavations of the cathedral have been carried out intermittently for over a century, but the picture of its construction is still incomplete. Excavations during 2018–2024 have brought to light new information on how the building was constructed.

- The cathedral was built above a late 10th century barrow cemetery. Besides, under the northwestern part of the cathedral the traces of unknown monumental structure of early 11th century was found that had been destroyed by fire.
- The outer walls of the cathedral are erected on stone strip foundations with strong mortar, whilst the inner walls are erected on strip foundations from large stone blocks without mortar. It is thought that this was done to mitigate earthquake damage.
- The subsidence of the cathedral’s structures during its construction indicates that the builders adhered



to certain technological standards, which, however, were insufficient for local soils, as subsidence continued later.

- Besides the central core with its five altar apses, the cathedral had an additional large altar apse in the northern outer gallery. Around the middle of the 11th century this apse was equipped with a brick two-step synthronon and was temporarily used as a main altar of the cathedral.

Finally, we note that the author’s method of the analysis of graffiti allows us to reconstruct the original floor levels from different periods as well as track changes in the functions of the individual spaces of the cathedral during the 11th - 17th centuries.

**383. PLINTHOI (BRICKS) AND THEIR STAMPS AND MARKINGS FROM THE MONUMENTS OF THE PECHERSK MONASTERY OF THE 11TH—13TH CENTURIES**

**Contribution format:** Oral  
**Contribution authors:** Olena Makhota (National Preserve “Kyiv-Pechersk lavra”)

The Rus officially adopted Christianity at the end of the 10th century. This led to the spread of new building traditions and the construction of monumental stone buildings; primarily churches and palaces. According to written and archaeological sources, about fifty monumental buildings of the 10th—13th centuries are known in Kyiv. Some of the monasteries with brick churches are located outside the city. Among them, the largest complex of the so-called Princely Age was the Pechersk Monastery. Its main buildings are made using bricks — an expensive and, at the time, a relatively new building material for Rus, but known from, Rome and Byzantium. A plinthois is a wide and flat fired slab like brick. It was used in the architecture of the ancient Rus in the late 10th — early 13th centuries. An interesting phenomenon was recorded on the plinths of the princely period — the marking of its surface with various marks. According to the established terminology, all marks are divided into signs (convex marks on the side surface), markers (made with a finger or a tool on the upper bed of the plinth) and stamps. Determining the functional purpose of markings is an interesting but still insufficiently researched and debated issue. The most common hypotheses about the need to mark the plinth are production-accounting, votive-personifying, and magical decoration. Using the example of marked plinths from the monuments of the Pechersk Monastery of the 11th—13th centuries, Olena Makhota’s recently published monograph contains an analysis of all aspects of the production of these early ceramic building materials, as well as a typology of markings and their variations. How rapidly did the use of plinthoi develop? and how was their production and use integrated into monumental architecture in Kyiv? These and other questions will be discussed.

**168. KYIVAN BONE-CARVING WORKSHOPS OF EARLY RUS PERIOD IN THE CONTEXT OF EUROPEAN BONE CARVING**

**Contribution format:** Oral  
**Contribution authors:** Maryna Serhieieva (Institute of Archaeology NAS of Ukraine)

The genesis of bone-carving craft in Early Rus’ was connected with external cultural interrelations. For Kyiv, the Northern European tradition of bone processing is of the main importance. Certain impulses from steppe cultures can also be traced. Bone items of high quality dated back to the 10th century could be import, its copies or the products of itinerant craftsmen. They are mostly associated with the warriors’ graves. Bone-carving workshops of the 10th - early 11th centuries in the Middle Dnieper Region including Kyiv have not been identified. Kyivan bone-carving craft itself developed during the 11th–12th centuries. Its development reached its peak at the late 12th – early 13th centuries. Kyivan bone-carving craft of this period is represented by the largest number of bone-carving workshops. In total, it is currently possible to take into account at least 7 stationary and possibly stationary workshops, 9 small temporary workshops and 8 workshops with unknown character of production. Kyivan craft is characterized by the largest volume of production among the towns of Eastern Europe and variety of product range. Market character of production and area of finds of some items presumably originating from Kyiv workshops allows us to consider Kyiv as a production center not only of local significance but also of regional one.

**931. KUFIC DIRHAMS WITH GRAFFITI IN THE FORM OF A BIDENT**

**Contribution format:** Oral  
**Contribution authors:** Andriy Boiko-Haharin (The National bank of Ukraine) – Oleksii Artiukhin (National Academy of Culture and Arts Management)

The earliest appearance of a bident on a coin refers to images on Kufic coins of the Arab Caliphate, applied with sharp objects in the form of graffiti. That is, graffiti on Kufic coins became the earliest practices of using the signs of the Rurikids even before the beginning of the own Rus’ coinage. Kufic coins with sharp objects applied to their symbols - signs of the Rurikids princes, symbols of Scandinavian paganism, military attributes of the Vikings, Scandinavian runes are extremely important in the study of trade operations of Rus’ at the beginning of the 9th century. Arab dirhams engraved with graffiti in the form of a bident, dating mainly to the end of the 9th

- beginning of the 10th century, that is, long after the death of Svyatoslav - indicate the use of the bident not as a specific personal family princely sign, but as a sign of the entire Rurik’s dynasty or as a sign of princely power in general. Graffiti in the form of a bident is one of the most interesting artifacts of the early period of the reign of the ancient rulers of Kiev - it bears on its field the tribal sign of the Rurikids of pre-Christian times, creating in fact the first reliable case of its use on coins.

**1268. TRAUMAS AND THEIR TREATMENT IN ANCIENT KYIV**

**Contribution format:** Oral  
**Contribution authors:** Arina Potapova (National University of Kyiv-Mohyla Academy) – Aleksandra Kozak (Institute of Archaeology of the National Academy of Science of Ukraine)

Traumatic injuries can reflect historical events and everyday life of the population. Kyiv of the 10th-13th centuries was the intersection of major trade routes. Representatives of numerous peoples and various professions inhabited different districts of Kyiv. The history of the City in different periods is full of social and natural disasters. One of the directions of studying the social status, life, and level of medical knowledge in ancient Kyiv is the study of the distribution of domestic, professional, or military injuries and traces of their treatment. The study involves about 300 individuals discovered in the Upper City, Podil, and Kopyriv Kinets burials. Morphological method was used, in some cases with the involvement of X-ray diagnostics. Healed and unhealed injuries to the skull and postcranial bones were studied. The most common in Kyiv in the 10th-13th centuries were domestic and occupation injuries. The number of military injuries increased during the period of Kyiv’s establishment as the centre of the state and in the middle of the 13th century. Skull injuries are more common in men. Healed trauma is found more often in mature individuals, unhealed injuries occur mainly in young adults. Frequency of postcranial trauma appeared to be similar in male and female, but its localisation on the skeleton differs in these two groups. The most typical for Kyiv residents were fractures of the tibia and ankle joints, as well as the radius. This may indicate the occupation of individuals or be associated with the landscape of the city, located on the hills. The overwhelming number of healed injuries indicates a high level of development of medicine in ancient Kyiv. The results obtained confirm the evidence in written sources about the methods of treating injuries and skills of Kyivan monastic and secular physicians.

**730. ARTISTIC INFLUENCES ON NORWAY FROM KIEVAN RUS IN THE ELEVENTH AND TWELFTH CENTURIES**

**Contribution format:** Oral  
**Contribution authors:** Kjartan Hauglid (Norwegian Institute for Cultural Heritage Research)

The paper will investigate to what extent Byzantine artistic influences are a consequence of the close connections between Kyiv and Norway in the eleventh century, especially the marriage between the Norwegian Haraldr Sigurðarson Hadrada (1015–1066) and Princess Elisiv (1025–c.1067), daughter of Yaroslav the Wise. The introduction of masonry architecture in Norway in the eleventh century brought non-figurative friezes and geometric patterns, marking a break with Viking art and Germanic animal ornamentation. These cultural connections are an under-researched topic in Scandinavian art and cultural history. From the end of the tenth century until the beginning of the twelfth century, the Scandinavian high aristocracy was closely linked to Kyivan Rus. Four Norwegian kings are known to have stayed for a more extended period in Kyiv (Kænugarðr): Óláfr Tryggvason (960–999), Óláfr Haraldsson (993–1030), Magnús góði Ólafsson (c.1024–1047), who spent his childhood in Kyiv, and Haraldr Sigurðarson, who fled to Kyiv at the age of thirteen and served the Emperor of Byzantium for several years before he married Princess Elisiv who became queen of Norway. In the twelfth century, Princess Malmfred (1095/1102–after1137), daughter of Mstislav the Great, became queen of Norway when she married Sigurðr Jórsalafari “the Crusader” (1090–1130).

**2473. BYZANTINE AND EARLY RUS’ CRAFT INTERACTION THROUGH THE MEDIEVAL GLASSMAKING WORKSHOP OF KYIV-PECHERSK LAVRA: THE CASE OF GLAZED POTTERY**

**Contribution format:** Oral  
**Contribution authors:** Sergiy Taranenko (National Preserve “Kyiv-Pechersk lavra”) – Mariia Tymoshenko (Museum of Kyiv History)

Conversion to Christianity was a powerful political, economic, and cultural factor affecting the development of Early Rus A notable contribution in this regard was the tradition of brick church construction introduced by the so-called ‘masters from Greece’. The Kyiv-Pechersk Patericon gives the legendary description of the construction of the Assumption Cathedral of the Kyiv monastery of the Caves. Nevertheless, the unearthing of production sites related to the manufacture of building materials and interior decor in the middle of the 20-th century (V.A. Bogusevich) and their subsequent research (2021-2024, S. Taranenko) has provided many insights into the practices of craftsmen and their interaction with the local community in a craft, social, and cultural context. In the



course of recent archaeological excavations of the glassmaking workshop intended for the production of smalt and glaze for the monumental decor of the temple, the remains of furnaces, production equipment (crucibles for glass and glaze), and production waste (slag) were identified. Exceptional finds include open-shaped bowls on ring bases, which imitate byzantine models. A visual observation of the composition of the ceramic composition and the quality characteristics of the glaze, including X-ray fluorescence (XRF) analysis, along with the processing techniques and the obvious manufacturing ‘defects’, allow us to argue that the workshop produced these items as an extra to the main product. Alternatively, according to the second version, this is evidence of the second phase of the workshop’s functioning after the byzantine masters have left, which probably did not continue for long under certain circumstances. The contribution opens the question of the prospects for further analysis methods of this group of materials and their correlation with findings from the archaeological assemblages of the princely city, the production sites of glass and glaze on wider areas of the Byzantine cultural circle.

**1904. DIGITIZING ARCHAEOLOGICAL HERITAGE OF KYIV AND SOUTHERN RUS’: PRESERVATION, RESEARCH, AND KNOWLEDGE DISSEMINATION**

**Contribution format:** Oral  
**Contribution authors:** Kateryna Ilchyshyna (Institute of Archaeology, National Academy of Science of Ukraine) – Oleksandra Ivanova (National University of Kyiv-Mohyla Academy) – Ivan Zotsenko (Institute of Archaeology, National Academy of Science of Ukraine)

Since the full-scale war began, Ukrainian archaeologists have intensified efforts to digitally preserve endangered heritage. The Scientific and Research Lab “Archaic,” in collaboration with the Institute of Archaeology of the National Academy of Sciences of Ukraine, has digitized key archaeological materials from Kyiv and Southern Rus’. Nearly 100 high-resolution 3D models have been created, covering both artefact digitalization and in-situ site documentation, which is especially crucial during wartime. Beyond preservation, this initiative expands research opportunities. High-resolution 3D models enable precise morphometric analysis, technological studies, and cross-cultural comparisons without risking fragile objects. With heritage under continuous threat, digital tools are essential for protection and knowledge dissemination, ensuring Rus’ legacy remains accessible for future generations. Among the digitized sites is the Kytayiv Archaeological Complex (10th–13th century), an urban center. Unlike standard digitization efforts, this project aimed not only to document but also to protect the site from urban development. Public engagement played a key role: publishing 3D models on a dedicated website significantly raised awareness. Another important case is the Church of Saints Borys and Hlib in Vyshhorod, one of Rus’ largest known churches. While only the foundations and one preserved wall remain, its 3D recording initiated a broader effort to digitize Kyiv’s archaeological sites. A major component is the Ukrainian Heritage Digitization and Dissemination Initiative (UHDDI), through which over 50 artefacts from Kyiv and the Baltic burial site “Ostriv” on Rus’ southern border were digitized. Objects such as fibulae and neck rings offer valuable insights into 10th–11th-century cultural interactions. This project not only preserves Kyiv and Southern Rus’ heritage but also enhances research and public access. It underscores the role of digital tools in safeguarding cultural heritage during war and highlights the need for continued collaboration.

**1404. THE CONSEQUENCES OF THE RUSSIAN MILITARY INVASION OF 2022 FOR THE ARCHAEOLOGICAL HERITAGE IN THE VICINITY OF KYIV**

**Contribution format:** Oral  
**Contribution authors:** Volodymyr Hnera – Artem Borysov – Ivan Zotsenko (Institute of Archaeology of the National Academy of Sciences of Ukraine)

The Russian invasion in late winter 2022 took place on the archaeological heritage-rich outskirts of Kyiv. The consequences of the intense military confrontation also affected the state of the archaeological sites. In 2022–2023, the German Archaeological Institute supported work to monitor the state of the archaeological heritage of the Kyiv region. The field part of A. Buiskykh research grant was coordinated by V. Ivakin. As a result of the work of several field groups, several hundred archaeological sites were examined. The surveyed sites can be divided into several groups: 1. Sites damaged by shelling with various types of ammunition. Various traces of ammunition hits are recorded on these sites. Often the cultural layer is destroyed at the point of impact with the formation of a funnel-shaped depression. The upper layers of cultural archaeological sites are saturated with metal fragments, significantly changing the cultural layer’s structure as a whole. 2. Archaeological sites have been damaged by fortification activities. Such archaeological sites are damaged by various trenches, dugouts, and other buried elements of military infrastructure. Such activity completely destroys the cultural layer of the archaeological site at the site of the construction of such elements of permanent fortifications. 3. Objects whose condition cannot be physically determined by ground monitoring during martial law. The condition of such archaeological sites can be indirectly assessed from satellite images (if available), or rather conditionally from indirect data. Some of the sites, although inaccessible due to mined entrances, are still visually recorded. The collected data continues the tradition of surveying archaeological sites in the region, which has been carried out by the authors since 2017.

Currently, the work has been suspended due to lack of funding.

**660. STRATEGIES FOR PROTECTION OF CULTURAL HERITAGE ARTEFACTS LOOTED DURING WAR AND CONFLICT – AN INTERNATIONAL PERSPECTIVE**

**Contribution format:** Oral  
**Contribution authors:** Håkon Roland (Museum of Cultural History, University of Oslo)

Cultural Heritage research has been strongly influenced by the current conflict in Ukraine. The paper will present recent research that exemplifies strategies to protect looted and trafficked cultural heritage artefacts during war and conflict with special attention to Ukraine. The increasing commodification of cultural heritage, driven by demand in the global antiquities market, has intensified looting and smuggling, particularly in war-torn regions. As a result, countless artefacts, termed “fragments of war,” are illegally circulated worldwide, exacerbating cultural destruction and undermining national identities. Cultural heritage crime is linked to broader criminal networks, including terrorism and drug trafficking. For example, Interpol’s seizure of 567,000 artefacts in 2020 alone underscores the magnitude of the problem. Strengthening crime prevention strategies is essential to curbing illegal trade. The 1954 Hague Convention and its Second Protocol emphasize the urgent need for preventive measures to safeguard cultural heritage in conflict zones. These measures include comprehensive inventories, emergency planning, and strategies for protecting or relocating artefacts. However, despite the international legal frameworks, enforcement remains inconsistent across nations. One major challenge is the ineffective coordination between national and international bodies. While Article 21 of the Hague Convention’s Second Protocol mandates the prevention of illicit export and movement of cultural objects, gaps in national regulations and enforcement mechanisms persist. Norway’s case illustrates this issue, where legal instruments exist but implementation falls short. Restitution of looted artefacts remains a crucial but under-addressed aspect of cultural heritage protection. The international community must reinforce its commitment to returning stolen artefacts to their countries of origin. National and international efforts must align to ensure that cultural heritage protection is not just a legal obligation but an active priority. Compliance with the Hague Convention’s Second Protocol, coupled with stronger enforcement, is vital for preserving humanity’s shared cultural legacy.

**397. GLAZED TABLEWARE FROM MEDIEVAL KYIV. THE ISSUES OF STYLE, DISTRIBUTION AND DATING**

**Contribution format:** Poster  
**Contribution authors:** Mariia Tymoshenko (Head of the Departmen. ‘Kyiv Ancient and Medieval’. Museum of Kyiv History)

Glazed tableware is a quite rare category of pottery in Early (Kyivan) Rus’. Its appearance and spread are directly related to the glass and glaze production for monumental decoration of the brick-built churches, as some of the finds have been noted among the deposits of the 11-th century production sites, including St Sophia of Kyiv and the Assumption Cathedral of the Kyiv Cave Monastery. At the same time, the sporadic findings from the residential areas and the other workshops of princely Kyiv remain outside of the academic discourse. The poster gives an overview of the specific group of open-shaped vessels with ring bases of local production, which originate from Byzantine glazed pottery in terms of technology and style. It is characterized by the white ware shard with a plain glaze of green and yellow colors, sometimes with simple engraved underglaze decoration or stripes of dense glaze contrasting with the main background. The research aims to present the current scope of finds, their distribution and dating in the archaeological deposits of Kyiv and besides that consider the specific features of their occurrence in the social and cultural context of the princely city.

**1901. ON DETERMINING THE PROBABLE CENTRES OF PRODUCTION OF CERAMIC GLAZED PAINTED EGGS FROM PRINCELY KYIV**

**Contribution format:** Poster  
**Contribution authors:** Alina Sushko (Deputy director general for research work Kyiv History Museum)

The issue of identifying the probable centres of production of ceramic polychrome eggs is important in the context of studying the material culture of Kyiv Rus. Polychrome glazed eggs are not only a vivid manifestation of pottery art, but also status items that were prestigious to own outside of Rus. This is confirmed by their distribution area among the materials of the Scandinavian countries, Poland, the Czech Republic, Bulgaria, Latvia, and Eastern Europe. Until recently, the localisation of probable centres of production of glazed painted eggs was determined by the quantitative indicator of finds in the designated area. These indicators are important, but not decisive. It is more important to refer to laboratory tests that can determine the chemical composition of clays and glazed. Thus, to clarify the probable location of the clay deposits whose raw materials were used to make the products and to establish an approximate recipe for the glazes used to decorate the eggs. This research was carried out at the Swedish Museum of Natural History in Stockholm (Rune Edberg) in collaboration with the Kyiv History Museum and the Institute of Archaeology and Ethnology of the Polish Academy of Sciences (Sylwia Siemianowska). The clay



dough was examined by ICP, and the composition of the glaze was analysed by SEM-EDS. The analytical results were processed by Torbjörn Björsson and Kristina Larsson. According to the results of the work carried out, it was confirmed that Kyiv was a leading center for the production of painted eggs, but not the only one, as it was believed until now. The analysis of the results shows the presence of another center on the territory of modern Ukraine. The work carried out did not provide an exhaustive answer, but laid the foundation for further research with the expanded use of the material base.

31 FROM TRADITION TO CRIME SCENE: BUILDING BEST PRACTICES IN FORENSIC ARCHAEOLOGY

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Regular session  
**Session keywords:** forensic archaeology, CSI, BPM, archaeological methods, archaeological methods, legal admissibility  
**Session organisers:** Pier Matteo Barone (American University of Rome | Forensic Geoscience Italy) – Cal Davenport (Blake Archaeology and Anthropology Services) – Mike Groen (Netherlands Forensic Institute)

SESSION ABSTRACT

This session explores the evolution of best practices in forensic archaeology, highlighting how established methodologies from traditional archaeology serve as a foundation for developing protocols in forensic and humanitarian contexts. The journey begins by examining traditional archaeological approaches, including field methods, remote sensing, geophysical techniques, stratigraphic digging, and bio-anthropological analyses. By showcasing these time-tested practices, we can set the stage for a comparative analysis of how they adapt and evolve to meet the needs of forensic and humanitarian investigations. The session aims to promote dialogue around the establishment of a Best Practice Model specific to forensic archaeology within the Scene of Crime ENFSI Working Group (SoC EWG). Presenters will discuss topics that address the practical challenges of applying archaeological methods in legal and forensic and humanitarian settings, from the search and recovery of human remains to (crime) scene management. These discussions will focus on ensuring that techniques are scientifically sound, legally admissible, and ethically responsible. The session will incorporate presentations to provide an interactive platform for attendees to share their perspectives, propose new ideas, and contribute to shaping best practices in forensic archaeology. By intertwining tradition and innovation, this session will not only educate participants on the nuances of forensic and humanitarian work but also raise awareness about the critical role archaeology plays in modern forensic and humanitarian investigations. Through this collaborative and multi-disciplinary approach, the session aims to inspire a broader understanding of forensic archaeology and its potential to establish standardized, effective practices that benefit both the field of archaeology and the justice system.

CONTRIBUTION ABSTRACTS

15. ADVANCING FORENSIC ARCHAEOLOGY: EUROPEAN STANDARDS AND INNOVATIONS IN CRIME SCENE INVESTIGATIONS

**Contribution format:** Oral  
**Contribution authors:** Pier Matteo Barone (The American University of Rome | Forensic Geoscience Italy)

Forensic archaeology has become a cornerstone of crime scene investigations and disaster victim recovery, offering a multidisciplinary approach to uncovering vital evidence and ensuring justice for victims. This presentation highlights the progress of the European Network of Forensic Science Institutes (ENFSI) Working Group on Scene of Crime - Forensic Archaeology (FA), specifically focusing on updates to the forthcoming Best Practice Manual. This manual aims to standardize methodologies across Europe, enhancing the consistency and reliability of forensic archaeological investigations. The presentation also addresses recent developments in European forensic archaeology, emphasizing collaborative efforts that integrate traditional archaeological techniques with advanced forensic technologies. Key examples of good practices include successful applications of 3D documentation during excavations, innovative remote sensing/geophysical surveys to locate clandestine graves or missing persons, and case studies from archaeological recovery operations. These examples underline the importance of cross-disciplinary collaboration between forensic archaeologists, anthropologists, and law enforcement agencies in achieving effective and respectful recovery operations. By exploring these advancements and good practices, the presentation underscores the critical role of forensic archaeology, the need of harmonized protocols, and the tangible impact of these practices in real-world investigations.

1396. NEW APPROACHES TO OLD IDEAS: HOW TO DETECT CLANDESTINE BURIALS COMBINING DIFFERENT TECHNIQUES

**Contribution format:** Oral  
**Contribution authors:** Almir Olovicic (Amsterdam Centre for Ancient Studies and Archaeology, University of Amsterdam) – Hayley Mickleburgh (Amsterdam Centre for Ancient Studies and Archaeology, University of Amsterdam | Forensic Anthropology Center, Texas State University) – Maurice Aalders (Dept of Biomedical Engineering and Physics, Amsterdam University Medical Centers)

The increasing number of global conflicts and mass violence requires robust remote techniques for locating burial sites, both for immediate criminal investigations and the recovery and identification of deceased persons, as well as for in-situ monitoring until excavation becomes possible. Although traditional survey and excavation methods (including test trenches and pits) remain preferred methods in many parts of the world, new technologies provide alternatives for non-destructive and remote location of potential graves, helping to reduce time, money and labour. This paper presents an interdisciplinary project aimed at developing reliable, safe, and efficient remote detection methods for clandestine (mass) burials. A key objective is to distinguish the presence of decomposing or skeletal human remains beneath the soil from other subsurface anomalies by analysing variations in spectral and thermal signatures. RGB, grayscale, multispectral, and thermal UAV imagery of experimental graves at a human decomposition facility in Texas are combined with environmental data and documented stages of body decomposition. In addition, open-source satellite images are evaluated for their potential in ongoing remote monitoring. Findings are cross verified against global datasets and tested in ongoing mass grave investigations in collaboration with the International Commission on Missing Persons. Promising remote methods include Infrared imaging (IR), which exposes thermal patterns in the soil, which can be indicative of subsurface anomalies. Multispectral imaging delineates the impact of buried remains on vegetation and soil disturbances, while remote Near Infrared and grayscale imaging capture human-induced alterations in the landscape. Physically locating historical graves resulting from mass violence is a crucial step in processes of (material) memorialization and transitional justice. Establishing validated spectral and thermal indices for remote detection and monitoring is necessary to facilitate the often difficult and dangerous task of locating graves, by reducing time, logistical and financial burdens associated with large-scale investigations.

1588. A HOLISTIC ASSESSMENT OF THE DOCUMENTATION OF LOCATIONS OF INTEREST AND DECEASED UNIDENTIFIED PERSONS FOR (MISSING) PERSON INVESTIGATIONS

**Contribution format:** Oral  
**Contribution authors:** Kristy Winter (Griffith University | International Committee of the Red Cross) – Pierre Guyomarc’H (International Committee of the Red Cross) – Rikke Rietveld (Cranfield University) – Andrea Zurek-Ost (University of North Carolina at Chapel Hill) – Peter Ellis (Griffith University | Forensic Medicine and Pathology Consultancy) – Almi Cabanzo Rubiano (The University of Texas Rio Grande Valley) – Stephan Naji (Commonwealth War Graves Commission) – Christopher Mcdermott (M-Emory) – Carney Matheson (Griffith University)

The documentation of deceased unidentified persons and locations of interests in a missing person investigation, particularly in the aspect of identifying the remains, is a complex challenge. The multifaceted variables interconnected within the identification process are conditional, but each one is independent and must be considered with scrutiny. Improvement to the overall identification process cannot exist without dissection of each variable and the applied improvements. Tracing the movement of persons (missing or otherwise) across different locations until they are found (alive or dead) is incredibly important to the continuity of their identity. Documenting locations and unidentified deceased persons is essential to determining a missing person’s fate, identifying them, and reuniting them to their loved ones. A thorough assessment of documentation, what and how it is recorded, helps identify weaknesses and limitations in the identification process in support of the investigation. Data were generated from holistic assessments of recording forms for locations of interest and deceased unidentified persons from medico-legal systems and structures globally. The forms were assessed for their language, diversity, and applicability for resolving missing persons investigations, as well as for thei. identification capacity. The analysis, divided by category of case (locations and unidentified persons) highlighted significant gaps and trends within the recording of information for missing persons investigations. The recording of information, lack of recording, or lack of accurate recording, of these different categories fails to capture comparable information between missing and unidentified persons to identify them. Without comparable information, the unidentified cannot be returned to their loved ones, leaving missing persons investigations ongoing. This presentation will emphasise the need to assess recording forms used by Forensic Archaeologists, and present suggested modifications to language, recording forms, documentation and medico-legal structures to prevent long-term unidentified persons.



2328. UNDER PRESSURE – POSSIBILITIES AND LIMITATIONS OF UNDERWATER RECOVERY MISSIONS

Contribution format: Oral  
Contribution authors: Svenja Weise (University of Southern Denmark)

Underwater excavations present unique challenges in maintaining the high standards of forensic archaeology. These operations are conducted not only under atmospheric, but also time and financial pressures, requiring seamless cooperation between scientific and commercial dive teams. For over 30 years, Project Recover, a citizen-led non-profit, has been dedicated to locating and recovering American service members missing in action. Partnering with the Defense POW/MIA Accounting Agency (DPAA) and Legion Underseas Services, a Veteran-owned commercial dive company, their missions span both underwater and land environments. In 2021 and 2023, Project Recover undertook two underwater recovery missions at a TBM-1C Avenger crash site in the Republic of Palau. These efforts led to the successful identification of all three missing servicemen by the DPAA. Over three weeks, a team of archaeologist(s), commercial divers, and volunteers of diverse backgrounds worked under water and on board. The average depth of 32 meters limited the time divers could spend excavating on site, and the extent and mangled state of the wreck required larger excavation units than usual. All work was performed in accordance with the standards specified by the Palau Historical and Cultural Preservation Act and the U.S. Secretary of Interior’s Guidelines for Archeology and Historic Preservation. These excavations prove that by adapting standard archaeological methods to underwater conditions, it is possible to meet forensic investigation needs, ensuring scientifically sound, legally admissible, and ethically responsible results.

1025. BEST PRACTICE MANUAL IN THE SEARCH OF SECOND WORLD WAR VICTIMS: RUSSIAN EXPERIENCE

Contribution format: Oral  
Contribution authors: Tatiana Shvedchikova (Institute of Archaeology RAS) – Aleksei Abramov (International Committee of the Red Cross icrc.org)

In 1992 Russia joined Valletta convention an. developed the legislatio. for the heritage preservation according to European tradition. The flexible border of 100 years since nowadays marked the starting point of archaeology. According to this rule the First Word War remains have to be investigated by archaeological methodology (which is highly developed) and strict policies. But the events of the Second World War are not yet covered by the federal law (#73-FZ) that regulates archaeological investigations. The potential of the archaeological approach to the evidence of recent past is undeniable. Researches who follow it gain significant advantage in the quantity and quality of the data obtained. In post-Soviet countries, the activities of non-governmental volunteer search teams are developed. They ar. focusing their efforts on the period of World War II and searching for the remains of fallen soldiers and civilian victims, and often don’t have any professional archaeologist in staff. Although, the understanding. that the archaeological methods combining forensic anthropology approach allow perform more professional fieldwork and help to identify nameless victims, does exist. It led to the necessity of standards and Best Practice Manual elaboration for this time period. The specific of developed Best Practice model and Standard Operation Procedure is the combination of anthropological, Forensic medical, criminalistic and classical archaeological approaches to the search an excavation of human remains. As an addition, the list of standard procedure operations as well as standard graphic forms are proposed for the description of excavatio. site and human remains.

32 ENTANGLING THE SOCIAL VALUE OF THE ARCHAEOLOGICAL RECORD: UNRULY PRACTICES IN ARCHAEOLOGICAL HERITAGE MANAGEMENT, CONSERVATION, AND DISSEMINATION

Session theme: 6. Intertwining archaeology, heritage, and museums  
Session format: Regular session  
Session keywords: public archaeology, archaeological record, archaeological collections, heritage values, community archaeology, conservation  
Session organisers: Michal Pawleta (Faculty of Archaeology, Adam Mickiewicz University in Poznań) – Ana Pastor Pérez (The J. Paul Getty Trust · Getty Conservation Institute) – David Barreiro Martínez (Spanish National Research Council, INCIPIT - CSIC)

SESSION ABSTRACT

Where are future dialogues surrounding archaeological collections and records headed? Most current practices in archaeological collections management continue to be guided primarily by technical and methodological criteria, often dismissing the creation of multivocal discourses. However, we also find examples where community

production, management, and conservation of collections have embraced new methods and ontological values, thereby incorporating peripheral voices. This social shift has long been perceptible on a global scale, particularly with the adoption of more critical and reflective approaches within the framework of public archaeology, heritage policies, and the significance of heritage values. These changes suggest an effort to develop new policies that emphasize foresight in the understanding and preservation of these records while placing communities at the center through more participatory methodologies. Therefore, the aim of this session is to discuss and explore how the social turn in heritage affects archaeological heritage management and its stakeholders, emphasizing the role of social perspectives. This session will specifically focus on papers that examine and/or contrast diverse methods and practices shaped by the recent social turn in archaeology and its social value, including archaeological interventions that do not necessarily involve excavation. This exploration may include:

- Diverse practices and experiences related to formal and informal collections, museums, archives, and sites.
- Community-driven and co-research projects aimed at creating new value discourses, strategies for preserving collections, reconstructions, re-enactments, or re-significations.

These initiatives and proposals can involve various social stakeholders and interdisciplinary perspectives, attempting to answer the following questions: What kinds of affections, intentions, and actions shape the community’s interests in creating and preserving a collection or site? Which methods support these interests? Who empowers whom? How do dissonances and conflicts manifest within these practices?

CONTRIBUTION ABSTRACTS

1430. SPYNIE PALACE: VALUE, KNOWLEDGE, AND POWER IN SCOTTISH METAL DETECTING

Contribution format: Oral  
Contribution authors: George Prew – Antony Lee (Treasure Trove Unit Scotland)

Spynie Palace, episcopal residence of the bishops of Moray in northeastern Scotland from the twelfth to seventeenth centuries CE, has seen seven years of formal excavation and over a decade of diligent informal metal detecting. This detecting has produced a body of material culture comprising hundreds of objects which, both individually and in aggregate, have added significantly to our understandings of the area throughout the Medieval period. By presenting the research history of Spynie Palace through the eyes of each of its stakeholders, this paper explores questions of informal knowledge versus formalised power, de facto and de iure ownership of a community’s heritage, and paths to co-operation within and alongside existing power structures. Metal detecting in Scotland exists within a system which is equal parts permissive and restrictive, wherein detectorists officially only require permission from landowners, but where anything they find must legally be reported to a treasure system which has only recently become fit for purpose. This has created an ecosystem of heritage communities, including:

- hobbyist detectorists with a strong sense of ownership and level of knowledge over particular areas of land even without any legal ownership of what they find;
- communities of landowners with varying levels of interaction with the objects found on their land and the people finding them;
- an official level of the Treasure Trove Unit, other local and national heritage organisations, increasingly cash-strapped museums, and a national legal apparatus which together act as guardians of local and national heritage.

Perhaps surprisingly, however, co-operation results from this situation far more often than chaos: This paper present the case study of Spynie Palace as one of the startling successes which the system has produced in recent years.

438. ASSESSING THE SOCIAL, ECONOMIC, AND SCIENTIFIC VALUES OF ARCHAEOLOGICAL HERITAGE: A POLISH CASE STUDY

Contribution format: Oral  
Contribution authors: Michal Pawleta – Aleksandra Chabiera (Faculty of Archaeology, Adam Mickiewicz University in Poznań)

Archaeological heritage is not only a priceless resource that we must protect; it is also a crucial element of development, both today and in the future. Although often undervalued and difficult to interpret, it holds immense potential to enrich our lives on many levels. It carries not only scientific value but also significant social and economic importance, stemming from its presence in our daily lives. Despite this imperative, shared by the professional archaeological community in Poland, assessment of archaeological heritage values in the country is not sufficiently understood or appreciated. Social research on this topic is scarce, making it difficult to develop effective strategies for the protection, promotion and making use of archaeological heritage based on empirical data and an evaluation of the effectiveness of current solutions. This presentation discusses the general aims and assumptions, as well as the preliminary research results, of the project titled ‘Values of Archaeological Heritage



from the Perspective of Local Communities: A Comparative Analysis’ - an extensive interdisciplinary initiative that, for the first time in Polish archaeology, addresses the topic of archaeological heritage values in a coherent and comprehensive manner. Using an innovative methodology based on both qualitative and quantitative social research methods, the project aims to analyze selected, representative examples to uncover the values embedded in archaeological heritage and related initiatives, and how these values can influence the lives of local communities and various stakeholder groups in Poland. It also strives to develop a dedicated research methodology that will enable systematic and comprehensive future studies of the values of archaeological heritage.

1505. WORLD HERITAGE NOMINATIONS FOSTERING DIVERSITY, EQUALITY AND SOCIAL INCLUSION

**Contribution format:** Oral  
**Contribution authors:** Monique Van Den Dries (Faculty of Archaeology, Leiden University)

Promoting the welfare of the world’s population is central to the United Nations Educational, Scientific and Cultural Organization (UNESCO). It aims to contribute to achieving a society based on fundamental values like social inclusion and equity and one that is grounded on tolerance and diversity principles. Through contemporary policies and programs, including those on safeguarding heritage for humanity, UNESCO encourages inclusive practices for the sake of all. It considers the symbolic value of inscription on the World Heritage list - particularly of sites or practices representing historically marginalized groups - to contribute to social inclusion and cohesion. The question is what this implies in practice; can we indeed observe a social turn? In this paper, the author looks at the degree to which the aim of achieving diversity, equality and inclusion plays a role in the context of World Heritage nominations and inscriptions. The nomination dossiers of fifty cultural heritage sites that were accepted for inscription in recent years were evaluated through a summative content analysis. The objective was to gain insight into the degree to which intentions of social inclusion and ambitions towards a people-centred approach in heritage management are expressed in these documents.

1331. CURRENT CHALLENGES IN ARCHAEOLOGICAL COLLECTIONS: PRESERVING MATERIALITY

**Contribution format:** Oral  
**Contribution authors:** Ana Pastor Pérez – Stavroula Golfomitsou (Getty Conservation Institute)

Recent advancements in our comprehension of the archaeological record facilitate the preservation of artefacts that embody multiple lives and significance. Archaeological artefacts are essential for understanding the multivocality of history and facilitating multiple connections between the past and present. For this to happen, we must design strategies that help us preserve traces linked to the histories of objects that transcend their physical nature in order to preserve values and memories. These strategies must include inclusive practices in conservation that are not limited to the northwestern perspective. However, how is the field of conservation and collection care evolving in response to these challenges? Do our interventions contribute to the understanding of the multiple narratives, multi-temporalities, and disputes that operate on objects? Could our approaches facilitate democratic access to the collections for researchers and the general public? Are we adapting our practices to the current trends inspired by social, community, or decolonial archaeology? This paper analyses the recent theoretical and methodological advancements in the conservation of archaeological collections. We will examine the evolution of our profession and role as archaeological conservators: its theoretical turns, practices, and the commitment to preserve materiality in a sustainable manner in both the short and long term. We will discuss the findings of the analysis of interviews conducted with professionals from diverse backgrounds, countries, and institutions. Finally, we will reflect on our vision for the future: promoting interdisciplinarity and establishing networks of actors hitherto excluded from the methodological and practical discussions of conservation and restoration.

1326. ARCHEOLOGY AND THE RECONSTRUCTION OF LOCAL MEMORY OF A PLACE ON THE EXAMPLE OF ARCHAEOLOGICAL RESEARCH IN THE WARSAW GHETTO

**Contribution format:** Oral  
**Contribution authors:** Jacek Konik (Museum of Independence in Warsaw) – Michał Grabowski (Cultural Heritage Research Foundation)

After WW II, Warsaw was approximately 90% destroyed. After the end of the war, there were too few inhabitants of the city to rebuild it on their own. Therefore, it was necessary to bring young people from other parts of the country so that Warsaw could rise again from the ruins Buildings and housing estates were often built on layers of rubble that could not be removed. In this way, the “Muranów” district was created on the site of the former ghetto, which was also supposed to be a monument to the murdered residents. However, the new, impressive buildings were very often inhabited by newcomers who had no roots in the city, and this group had no social memory of the war history of the places where they lived, and most often they were not interested in it. This changed after 1989. In Poland, there has been a clear shift towards local history. In Warsaw, the descendants of those who rebuilt the city began to look for material traces of local history. It was particularly difficult in the ghetto. Commemoration

sites are most often a story about death, not life. Archeology came to the rescue and found traces of a given life. There was some discussion and controversy. The presentation will discuss the residents’ reactions to the archaeological research from 2021-2023 (exploration in the Krasińscy Garden, at the intersection of Miła and St. Dubois streets, at Gęsia street) and their results. Not only will the varied reactions to the excavations be presented, but also the emerging questions of what to do with the discoveries (leave them uncovered and preserve them? Remove them?) and what to do with the memory of the place and how to include it in the process of rebuilding local social memory and awareness of local history.

1208. ARCHAEOLOGY IS DONE IN THE LIBRARY: MAPPING FORGOTTEN DIGS THROUGH TEXT MINING

**Contribution format:** Oral  
**Contribution authors:** Liam Downs-Tepper (University of Vienna)

Time buries all. This applies as much to archaeological records as to sites themselves; the challenge for both lies in the digging. Yet that physical toil becomes pointless if the record of it vanishes into obscurity. Instead of focusing on establishing guidelines and policies for long term sustainability of archaeological records going forward, this paper considers hindsight. The goal is simple: to create a usable map and index of archaeological records from historical journals. Beyond the inherent benefits of offering greater visibility to records, this project allows for an efficient, consolidated, and comprehensive access point for earlier archaeological work. This type of resource would be of particular value to community heritage organizations, illuminating long-forgotten work in the area. It also allows for some fascinating meta-analysis of archaeological patterns and areas of focus for different journals and eras. This expands upon work text-mining historical records (Minimo 2012, Richards 2015, and Plet 2021, among others) by both centering the geospatial and targeting accessibility. While the ultimate goal of this work is a full survey of (out of copyright) journals, the initial corpus is The American Journal of Archaeology, in which early volumes had dedicated chapters for overviews of finds - discussing work at dozens of locations in the first edition alone. It is only recently that tools have advanced enough to facilitate this type of work. This project offers various options, focusing on free and open source tools where possible, such as geocoding via OSM and building interactive websites using QGIS and Github. It also offers a framework for others to do similar work; with and without incorporating AI tools. This project allows for far greater access and dissemination of long dismissed records, bridging the gap documenting archaeology as it was and archaeology as it will be. A demo is here: <https://iamliamdt.github.io/EAA2025/>

465. SAVING FILES, REKINDLING STRUGGLES, ASSEMBLING MEMORIES

**Contribution format:** Oral  
**Contribution authors:** David Barreiro (Institute of Heritage Sciences, Spanish National Research Council)

Santiago de Compostela (Spain) is renowned for its historical and architectural heritage, which is closely associated with the Church and the city’s university. It is not an industrial city, nor does it have a large working-class population. However, certain areas on the outskirts of the city arose as a result of the social housing policy of the final years of the Franco regime. These residential areas were characterised by the low quality of the building materials employed, their lack of basic urban infrastructure and overcrowding. During the 1960s and 1970s, these neighbourhoods became home to underprivileged people who mainly moved in from rural areas. Policies which marginalised these residents led to problems of integration and crime, particularly in the 1980s. One such residential area (Vite), located in the north of the city, has undergone a process of great change from the time of its foundation to the present day, now being considered one of the most desirable areas to live in the city. The fighting spirit of the neighbourhood’s residents and their achievements have played a fundamental role in this process of change. Their struggle has left a material culture consisting of objects and documents of historical and sentimental value for the residents of the neighbourhood. For this reason, the Vite Arquiva initiative was created some years ago to create, organise and maintain a community archive and to promote different activities relating to the historical memory of the area. This initiative arose from the interconnecting memories of the community’s members, even reaching back to times before the construction of the residential area, to the rural life which thrived in the same physical space.

1759. SOMEWHERE IN BETWEEN CREATING A SPACE FOR DIALOG BETWEEN THE COMMUNITIES AND EXPERTS WESTERN SERBIA

**Contribution format:** Oral  
**Contribution authors:** Marija Aleksic Cevrljakovic (Institute for the Protection of Cultural Monuments Kraljevo)

If we acknowledge the need to put people and human values at the center of an enlarged and cross-disciplinary concept of cultural heritage, should we allow communities to value and interpret, use, or shape heritage independently and equally with experts? Although the duality of archaeological sites is recognized in their basic definition, for they are seen as instruments for historical and scientific study and as heritage, these features are



often used as synonyms. Because of the assimilation, the experts have a main role in interpreting and intervening with sites. As a rule, the knowledge of the community is ignored or isn’t equal in the processes of presentation or naming the place. However, if the goal is to achieve full potential of the archaeological remains, introduced by documents, should we allow two separate processes, which may or may not have the same starting point and outcome? One is led by experts to acquire knowledge about the past, and the other by communities in creating a place based on traditional knowledge or contemporary needs. Although in the processes of defining Us and Others, i.e. our and other peoples’ past some traces remain outside the focus of the group, there are examples in which the group interprets and appropriates remains from the ancient past, translating them into heritage. In these processes, expert knowledge often doesn’t play a significant role. This lecture will present examples from Western Serbia in which communities interpret, use, or ignore material traces from the past in the process of building a place and its identity. The goal is to point out, through examples, the existence of parallel realities and to show their consequences to archaeological sites. All this may problematize the statement that every material trace of the past is a heritage.

**1245. AT THE CROSSROADS OF COMMUNITY FORESTS AND PUBLIC ARCHAEOLOGY: A NEW APPROACH TO MANAGING CULTURAL HERITAGE IN GREATER POLAND’S FORESTS**

**Contribution format:** Oral  
**Contribution authors:** Paulina Przepiórka (Faculty of Archaeology, Adam Mickiewicz University)

Community forests, introduced into the Polish legal system and created from 2024, represent an innovative model of participatory forest management that actively involves local communities in decision-making processes. These forests create a unique platform for the co-management of natural and cultural heritage, fostering a sense of shared responsibility and engagement among community members. By integrating local knowledge, traditions, and values, community forests strengthen the role of communities in preserving both the ecological and historical landscape. One of the key potentials of community forests lies in their capacity to serve as a framework for the protection and interpretation of archaeological heritage located within forested areas. Public archaeology, built upon direct collaboration with local communities, can enhance the sustainable management of archaeological sites by incorporating participatory documentation and preservation methods. Community members, acting as stewards of their own historical landscape, can contribute to the mapping, monitoring, and interpretation of archaeological resources, ensuring their protection for future generations.. The aim of the paper is to explore the opportunities that community forests offer for the development of public archaeology, with a particular focus on the Greater Poland region. It will analyze the ways in which local communities can be actively involved in the documentation and preservation of archaeological sites through citizen science initiatives and other participatory methodologies. Special attention will be given to collaborative strategies that empower communities to take an active role in managing their cultural and natural heritage, reinforcing the idea that sustainable conservation efforts must be deeply rooted in local engagement and responsibility.

**280. ARCHAEOLOGICAL HERITAGE, SCIENTIFIC RECORDING, REMAINS AND DESTRUCTION: A LOOK AT A COMPLEX RELATIONSHIP**

**Contribution format:** Poster  
**Contribution authors:** Gertrudes Branco – Nelson Almeida – Inês Ribeiro (CHAIA/Universidade de Évora)

Over the last two decades, Portuguese archaeology has experienced a significant increase in the volume of work, mainly related to the practice of so-called Preventive Archaeology and Impact Minimisation, developed contractually in the context of projects that could destroy archaeological assets. This increase in work has corresponded to an exponential increase in the volume of archaeological remains deposited at sites proposed or approved by the authorities, understood by its legal definition as the set of movable archaeological goods, such as artefacts, ecofacts and samples, together with the corresponding inventory and other documentation produced during field and office work, which is indispensable for the handling and understanding of the context to be preserved for future memory. Our experience as researchers studying and working with collections of archaeological remains leads us to question how we consider archaeological assets to be ‘national heritage’ under the law, and what their validity actually is as a ‘scientific record’ that can replace and justify the destruction of an archaeological asset.

**1236. THE NEVER-ENDING STORY: ANTA DO ZAMBUJAL AS A CASE OF POST-DESTRUCTION GAINING OF SOCIAL VALUE?**

**Contribution format:** Poster  
**Contribution authors:** Nelson Almeida (Universidade de Évora, CHAIA – IN2PAST | UNIARQ, Universidade de Lisboa | O Legado da Terra, CRL) – Miguel Serra (Serpa Municipality | CEAACP-Uc) – Luís Costa – João. Reis (O Legado da Terra, CRL) – João Barreira (Museu Rainha Dona

Leonor | Institute of Contemporary History, University of Évora / IN2PAST | O Legado da Terra, CRL)

Recent years have seen an increase in the amount of agricultural land reconversion in Southern Portugal, resulting in the affectation and destruction of several archaeological sites with mass media coverage. Among these, the destruction of prehistoric contexts as also been recognized, including megalithic monuments. One of these cases and among the few that were excavated is the Anta do Zambujal, a previously known Late Prehistory tomb located in the Vidigueira Municipality (inland Alentejo, Southern Portugal), a low-density rural area. This site was recognized and subjected to a small archaeological intervention of which no information was published beyond a technical report. In 2017 the site was destroyed following agricultural works with repercussions on regional and national mass media. A small intervention aiming to assess the preservation of contexts was made, followed by a larger intervention by the heritage cooperative O Legado da Terra, with both scientific and social aims considered since the beginning. Following guardianship regulations, after the excavation, the remaining unaffected contexts were covered and the site “disappeared” with only its scar being seen in the landscape. Besides divulging of works through social media and press, a small exhibit with information on the site accompanied by a presentation to the local community was done. The 3d record of the site prior to the covering was also made freely available online. Recently, an artistic photographic exhibit on archaeological sites and materials was prepared, with a selection of materials from the site being exhibited as an example of destroyed heritage. This never-ending story leads us to discuss how heritage destruction paradoxically might result in a post-destruction acquisition of social value even if not long lasting, and if this can lead to help in the preservation of other heritage assets.

**34 PAST MOVES, PRESENT FINDS: THE ARCHAEOLOGY OF GAMES IN THEIR SOCIAL CONTEXT**

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** Board games, Leisure, Culture, Entertainment, AI  
**Session organisers:** Tim Penn (University of Reading) – Barbara Carè (University of Fribourg) – Walter Crist (Leiden University) – Branislav Kovár (Slovak Academy of Sciences) – Dorina Moullou (Hellenic Ministry of Culture)

**SESSION ABSTRACT**

The archaeology of board games in their social context has recently gained significant scholarly attention. Once dismissed as an antiquarian pursuit, attitudes have shifted thanks to two European Research Council-funded projects and the ongoing COST Action “Computational Techniques for Tabletop Games Heritage (GameTable),” with which this session is associated. This shift reflects growing recognition that studying traditional games in (pre-) historical societies offers insights into past and present human behaviour, cognitive processes, and social structures. Research has demonstrated play’s ubiquity in human societies worldwide, highlighting its connections with societal aspects such as leisure, social interactions, literacy, numeracy, trade, and cross-cultural communication. Games were not just forms of entertainment but served as tools for teaching skills, fostering social cohesion, and transmitting cultural values. They were embedded within religious, political, and economic systems, playing significant roles in identity formation and social integration across cultural settings. Despite the growing recognition of play’s importance in the past, many questions remain about games’ role in human societies. This session will uncover how ancient games were integrated into daily life, demonstrating game studies’ potential to enhance our understanding of human behaviour, social interaction, and the movement of ideas. We invite contributions which take archaeological, ethnographic, and historical approaches to board games. Papers will examine the material culture of gaming—boards, dice, tokens—while considering play’s broader social contexts. We welcome particularly contributions focusing on under-represented regions and periods, alongside those employing innovative scientific methodologies such as computational modelling, AI-driven reconstructions, and experimental archaeology. Papers dealing with reconstructed and preserved games to teach cultural, historical, and technological concepts in formal and informal educational settings are also welcome, as are papers addressing the preservation of heritage games. The session aims to underscore the relevance of game studies for understanding broader cultural phenomena and to foster cross-disciplinary dialogue.



2260. BOARD GAMES IN TRYPILLIA: WHERE ARE WE NOW?

**Contribution format:** Oral  
**Contribution authors:** Liudmyla Shatilo (Institute of Pre- and Protohistoric Archaeology, Kiel University | Institute of Archaeology of the National Academy of Science of Ukraine)

This contribution examines the social and historical context of prehistoric ‘board games’. This label is used conventionally, as it does not fully reflect the full range of the possible use of the discussed objects. Many ancient and ethnographic examples of such ‘games’ show that they are often associated with predictive and divinatory practices. The inventory of the Trypillia complex (4700-3000 BC), which can, as one of the hypotheses, be interpreted in the context of board games, is represented mainly by three categories of material. These are numerous finds of tokens, astragals and a few boards ‘for games’. After identifying the last objects as game boards (Shatilo 2015), new similar objects have been found (Chapman et al., 2020; Chernovol 2023), the research has been conducted on tokens (Juncker 2023), and understanding of the entire Trypillian phenomenon has changed significantly, in particular thanks to several recent research projects (e.g. Müller et al. 2016; Gaydarska 2020, Hofmann et al. 2019). This study is aimed at revision of ‘board game’ inventory through contextualising it within the framework of new interpretations of the Trypillia complex and adding recently found objects. A few observed patterns should be highlighted: association of some of the ‘game’ boards with communal buildings (mega-structures) and the reduction in the number of tokens used in the post-mega-site period. All this points to the potential interconnection of the use of these objects with historical and social realities.

335. A PREHISTORIC BOARD GAME FROM NW IBERIA: THE CASE OF CASTRO CURBÍN (ARZÚA, GALICIA, SPAIN)

**Contribution format:** Oral  
**Contribution authors:** Samuel Nión-Álvarez (Institute of Heritage Sciences (INCIPIT-CSIC))

This paper presents an approach to one of the few Iron Age board games with well-defined stratigraphic and chronological contexts. It was found in a small hillfort (Castro Curbin, Arzúa, Galicia, Spain), and it has been dated between the 4th and the 3rd centuries BC, without any kind of relation with Roman contacts. The work proposes an in-depth analysis of the archaeological evidence, focusing on describing the archaeological site and the context of the material evidence, the process of fabrication of the pieces and some of their most relevant features. This approach has revealed specialised production techniques for game objects, diverse typologies of game pieces, and their deliberate fragmentation within a votive context. The game board from Castro Curbín stands out as a remarkable example of a European Iron Age board game, offering reliable contexts, absolute dates, and strong connections with cultic activities, providing a significant context for understanding Iron Age games.

1727. FINDS OF BOARD GAMES IN THE NORTH OF THE CARPATHIAN BASIN

**Contribution format:** Oral  
**Contribution authors:** Branislav Kovár (Institute of Archaeology, Slovak Academy of Sciences)

The north of the Carpathian Basin is still an unexplored area in the research on board game finds. Despite the fact that the history of board games is ideal for research into several types of human interaction, the region of central Europe remains a proverbial terra incognita in this respect. This paper aims to map the finds of board games and their components from the Iron Age to the Middle Ages. The aim of the presentation is to report and analysis on lesser-known finds. The main group of finds consists of game stones, figurines and tokens, which may have been made in the form of polished pebbles or ceramic and bronze discs. During the La Tène period, in the context of the probable Celtic migration, several processes took place in Central Europe that changed the environment of the Carpathian Basin. We have only indications of board game finds, for example, the dice game (clay and bone dices) is much more frequently documented. In the Roman period, the territory of the northern Carpathian Basin came into direct interaction with the expanding Roman Empire. It is in this period that we have documented finds of playing stones, tokens and tokens. In addition, we have confirmed isolated finds of game boards. Finds have not only been found in the environment of Roman camps, but also among the “barbarian” Germanic tribes. A typical and best example is the well-known discovery of a game board from the grave of a Germanic nobility man in Poprad. The largest number of finds of board games and their components were found in the study area in the Middle Ages. Again, these are mainly finds of playing stones, but we have also documented several board games (e. g. mills/marelles and chess).

2389. GAMING AND PLAY IN ROMAN PANNONIA

**Contribution format:** Oral  
**Contribution authors:** Linda Dobosi (Eotvos Lorand University | HUN-REN-ELTE Research Group for Interdisciplinary Archaeology)

Archaeological finds connected to gaming and play are numerous in Roman Pannonia but are mostly unpublished. The area of the province, which was inhabited by indigenous Celtic tribes, was merged into the Roman Empire during the first half of the 1st century AD. The province had an extremely long section of the Danube limes, a contact zone for the different cultures living in the region. For this reason, not only classic Roman game pieces were used in Pannonia, but also Iron age Celtic and Roman age Germanic pieces as well, for example long dice. Game pieces have been found in funerary contexts as well as during settlement excavations. A ludus duodecim scriptorum game board made of limestone was set up on the forum of Scarbantia (Sopron, Hungary). Other game boards were scratched on the surface of bricks and tiles before firing, these mostly had a checkerboard pattern. Dice and counters were generally made of bone, but along the Amber Road pieces made of red and yellow amber have also been found in graves in Savaria (Szombathely, Hungary) and Scarbantia. In the case of counters, the reuse of the bottom part of pottery or glass vessels is a frequent occurrence. Furthermore, a half-finished bar of bone from Campona (Budapest, Hungary) provides an insight into the manufacturing process of six-sided dice. The paper will give an overview of the game pieces used in Roman Pannonia based on the finds that are in the collection of Hungarian museums and will discuss the multidirectional cultural transmission along the border of the Empire.

2173. NEW DIRECTIONS IN TABLETOP STUDIES: THE STUDY OF PAVEMENT DESIGNS AND BOARD GAMES FROM ATTICA

**Contribution format:** Oral  
**Contribution authors:** Barbara Care (University of Lausanne / FNS)

The paper presents ongoing research on designs carved into pavement slabs and steps at various archaeological sites in Attica, Greece. As recent studies on graffiti (“inscribed or surface applied media”) have shown, this evidence cannot be universally defined or interpreted outside the specific context in which it was produced. This context is not simply a matter of archaeological provenance, but of temporal and spatial context at immediate and wider scales, as well as cultural context within a broader understanding of both the practice and materiality of these graphic signs. Long neglected, these engraved media are now seen as significant evidence of human agency, preserving important and otherwise unknown information about lived experience and human creativity within ancient cities. They have been recorded from across the ancient Mediterranean, and their study is now an important strand of archaeological research. Games are also recognised as a rich source of knowledge about our shared cultural past, providing privileged access to the social, cultural and economic fabric of past societies. While it is generally accepted that graffiti board games have much to contribute to this debate, a global approach is still lacking. The contribution introduces a new research project that aims to deepen our understanding of games as cultural artefacts in ancient Greece and to develop new methods and techniques for their identification. By integrating the traditional study of rules with the implementation of new methods of investigating the materiality and experience of games (using digital documentation, AI and machine learning techniques), it combines the content and physical appearance of design in open spaces with the study of ancient urban landscapes and offers insight into the social context of games.

167. WHOSE GAME IS IT ANYWAY? ANALYSING ANCIENT AND POST ANTIQUE BOARDGAMES AT APHRODISIAS, TÜRKIYE

**Contribution format:** Oral  
**Contribution authors:** Tim Penn (University of Reading)

Board games carved into floors, seats, and steps are common in Roman, late antique, and Byzantine urban sites. Despite the significant potential of these carvings to inform us about everyday life in the past, they have received little systematic study. Until recently, board game studies were largely confined to antiquarian approaches that sought to reconstruct game rules. The past decade, however, has seen an explosion of research into the significance of games in past societies, exploring who played games, where and when they played them, what they played with, and what this reveals about social practices. Major opportunities in ancient board game studies nevertheless remain, as progress is hindered by the lack of systematic collection and collation of archaeological evidence for carved gameboards in the ancient and post-antique world. Moreover, no rigorous or systematic attempt has been made to date these gameboards; games are often discussed in synchronic terms, implying that all games were played in the same way, within the same types of social settings, across the entire ancient and post-antique world. This assumption deserves re-evaluation. This paper addresses these issues by presenting an initial analysis of my site-wide survey of gameboards from Aphrodisias, Türkiye. Critically, 60 years of detailed study at



Aphrodisias enable us to closely date the construction of many building surfaces into which gameboards were carved, providing for the first time a reliable terminus post quem for these boards. Since existing research does not closely consider the chronological dimension, this study is particularly important in helping us understand when these games were played—predominantly in the late antique period—shedding new light on their social significance in the urban environment of Aphrodisias.

1286. CHANGING THE GAME: MEASURING MESOPOTAMIAN GAMES WITH AI-SIMULATED PLAY

**Contribution format:** Oral  
**Contribution authors:** Walter Crist (Leiden University) – Éric Piette (UCLouvain)

The Royal Game of Ur is one of the oldest board games known to have existed, having been played in Sumer since at least the middle of the third millennium BCE the game was also played in Iran, Central Asia, and in the Indus Valley. Toward the beginning of the second millennium BCE, the geometry of the board changed, creating a new configuration of playing squares known in the archaeological literature as the game of twenty squares.. Around the same time, the geographic distribution of the game shifted to the west, and for the next 2000 years the game was one of the most popular games in West Asia. Through translation of a Seleucid tablet from 177 BCE that contains important details about the rules as well as ethnographic analogy to games with similar geometry, this game is one of the best understood of the ancient games from the region. Based on this knowledge, proposed rules for this game by Irving Finkel are consistent with the ancient sources and indicate a likely way that the game was played. However, the change in board geometry, because of its degree, and persistence, indicates that it is not a superficial change to the game, but something that changed its experience. To measure this, we calculate metrics through AI-simulated play of Finkel’s rules on the Royal Game of Ur and game of twenty squares to explore how change in board geometry may have changed the experience of the game. These metrics include the length of the game (measured by number of turns), Player 1’s advantage, and “drama,” or changes in who is expected to win the game at each turn. Comparing the geographic and chronological distribution of these game with their gameplay metrics may provide indications for changing gameplay preference in the ancient world.

2025. PLAYING PEACE AND UNITY: USE OF POSITIVE ARCHAEOLOGICAL AND HISTORIC NARRATIVES FOR SHAPING BETTER FUTURE VIA BOARD & VIDEO GAMES

**Contribution format:** Oral  
**Contribution authors:** Ivana Pandzic (University of Banja Luka) – Manojlo Maravic (University of Novi Sad) – Zrinka Mileusnic (University of Primorska) – Zlatko Bukac (University of Zadar) – Nenad Joncic (National museum of Serbia)

This paper discusses the role of games, both board and video, based on archaeological and historical facts from the Balkans, from ancient and medieval societies up to today, with a focus how these games could shift the cultural narrative. This study shifts the lens toward games that emphasize peace, collaboration, and communal life, drawing from archaeological and historical records to inspire more positive representations of the past. By examining games as cultural artifacts, this paper discusses how the design and content of these games can influence modern perceptions of history and society. Specifically, we explore the game as a tool that could address contemporary issues by reflecting on how past societies found ways to rebuild and unit, as well as how people in the region had historically found ways to unite, collaborate, and thrive together. Ultimately, this paper highlights the potential of the archaeology of games to reshape historical narratives, reflecting how past societies have overcome challenges through unity and cooperation.

2059. FROM THE FIELD TO VIRTUAL ARCHAEOLOGY: GAME ENGINES IN THE PRACTICE OF ARCHAEOLOGICAL STORYTELLING

**Contribution format:** Oral  
**Contribution authors:** Milena Rakovac-Joncic (IARC) – Nenad Joncic (National Musuem of Serbia) – Ivana Pandžić (Faculty of Philosophy, University of Banja Luka) – Martina Blečić Kavur – Boris Kavur (University of Primorska, Faculty of Humanities, Department of Archaeology and Heritage) – Ivana Ožanić Roguljić (Arheološki institut Zagreb)

Digitization and digitization in archaeology have changed the possibilities of archaeological storytelling in recent decades. Archaeology has been an inspiration in gaming since its beginnings. Some of the games with archaeological themes have become Hollywood blockbusters. However, the real question is how much archaeology has managed to embrace the new possibilities of game engines. Archaeology has fully embraced and largely uses the potential of 3D scanning, 3D modelling, and digital reconstruction. This has led to new disciplines in archaeological science, such as Digital archaeology, which digitizes archaeological heritage; Virtual archaeology, which brings 3D models and reconstructions on displays and virtual reality (VR) and augmented reality (AR); And Archaeogaming, which studies the connections between archaeology and video games. As 3D scanning of

archaeological artefacts becomes more and more popular, the usage of digital twins and game engines in museum presentations is questionable. The idea is to investigate levels of utilization and the possibilities of gaming in archaeological storytelling, through examples from the museums across former Yugoslavia.

35 GRAVE REOPENING IN THE FIRST MILLENNIUM CE - CONNECTING EUROPEAN REGIONS

**Session theme:** 8. Along and across the Danube!  
**Session format:** Regular session  
**Session keywords:** Mortuary practices, Archaeothanatology, Grave disturbances  
**Session organisers:** Alison Klevnäs (Uppsala University) – Edeltraud Aspöck (University of Graz) – Tamara Šarkić (University of Belgrade) – Lavinia Grumeza (Romanian Academy) – Alpár Dobos (National Museum of Transylvanian History)

SESSION ABSTRACT

Taking as our starting point the broad region of central and southeastern Europe in which the conference takes place, this session will discuss evidence of deliberate re-entries into inhumation burials during the first millennium CE. Graves disturbed soon after burial or while cemeteries were still in use are a widespread phenomenon across first millennium Europe. Usually evidenced by disarranged skeletal remains and artefacts and often pits dug to access contents, they have been noted in many countries since the early days of excavation, and have typically been regarded as grave robbery. In post-Roman western Europe, recent research has debunked traditional narratives in understanding grave reopening. Methods from micro-stratigraphy, archaeothanatology, and bioanthropology are being used to better understand natural processes and post-burial interventions, as well as the timing, motives and beliefs behind these actions. Far from theft, the widespread reopening there seems to be a selective activity targeting specific forms of artefact, and is argued to represent extended mortuary customs. The focus of this session is to discuss evidence in central and southeastern Europe against a broader geographical and methodological picture. These regions see even higher intensities of reopening, with whole cemeteries often affected, not least in earlier phases. The territories of the Pannonian Plain, for example, experienced centuries of migrations, warfare, and raiding, and there are cultural discontinuities, as well as elements of continuity. There researchers have observed a widespread phenomenon of grave reopening in numerous necropoli in different phases. However, there are not yet regional discussions, comparisons, or contextualization of the phenomenon within the broader European historical context. The session aims to connect archaeological and bioanthropological research on grave reopening and post-burial interventions, and to share knowledge and approaches. Contributions may include synthetic research, case studies, and methodological reflections. We plan to publish the papers as a proceedings volume.

CONTRIBUTION ABSTRACTS

338. THE PHENOMENON OF REOPENING RECORDED IN THE SARMATIAN CEMETERIES OF THE GREAT HUNGARIAN PLAIN

**Contribution format:** Oral  
**Contribution authors:** Valéria Kulcsár – Eszter Istvánovits (Independent)

Our study deals with the reopening practices in the Sarmatian community of the Great Hungarian Plain in the Roman Age. This culture is special because of the outstandingly high percentage of looted graves. In most of the Sarmatian cemeteries excavated in Eastern Hungary around 80 percent of the burials were robbed. Judging from the position of the parts of the skeletons we can make conclusions on the state of the corpse in the moment of looting. It has been a long discussion in the literature considering the time of grave robbing. It seems that we should count both with the looting cases soon following the act of the funeral, and also with the ones that happened some time later. The phenomenon of disturbing the graves by the members of the same community is still to be understood and explained. We suggest field methods and recording practices to better understand the different ways of burial robbery.

536. GRAVE REOPENING IN NORTHWEST ROMANIA: INSIGHTS FROM SARMATIAN BURIALS IN BIHOR COUNTY

**Contribution format:** Oral  
**Contribution authors:** Lavinia Grumeza (Romanian Academy, Iași Branch, Institute of Archaeology) – Cristina Tica (Globe Institute, University of Copenhagen)



During the 2nd to early 5th centuries AD, the majority of archaeological findings on in the Great Hungarian Plain and the Western Plain of Romania are associated with Sarmatian culture. The funerary practices are characterized by inhumation graves, either flat or barrow graves, often accompanied by circular ditches. This paper focuses on the recently excavated Sarmatian cemeteries of Bihor County, Northwest Romania (sites: V Borș, IX Biharea, and Parc Nervia), comprising 60 graves. Approximately 80% of these graves were reopened after the skeletonization of the deceased, likely by members of the same community. Detailed patterns of disturbance—including disarticulated skeletal remains, mixed bones and emptied graves—indicate selective grave reopening, particularly targeting graves with barrows and circular ditches. These features, highly visible on in the landscape, were likely associated with wealth or status, making them prime targets. By contrast, deviant burials (those in settlement pits and atypical body positions), remained undisturbed. This paper situates the findings within the broader context of the Great Hungarian Plain, exploring potential motivations, cultural practices, and parallels. The study integrates archaeological, bioanthropological, and archaeothanatological perspectives to advance the understanding of grave reopening as a significant and multifaceted mortuary phenomenon in the first millennium CE.

**734. THROUGH THE BIOANTHROPOLOGISTS EYES - BONE WEATHERING TRACES FROM REOPENED SARMATIAN GRAVES**

**Contribution format:** Oral  
**Contribution authors:** Tamara Sarkic (Center for Forensic and Applied Molecular Genetics, Faculty of Biology, University of Belgrade)

Due to recent rescue excavations in the Bačka region (Vrbas area), archaeologists found around 100 graves from Sarmatian times, 3rd-4th century. Field documentation records systematic grave reopening with more than half of the graves being reopened; however, excavations are carried out without bioanthropologists being present. Skeletal material from these excavations underwent bioanthropological research, from basics (preservation, demography, paleopathology) to specialized analysis of bone taphonomy appearance (weathering, coffin wear modifications). To study the effects of grave reopening on bone morphology (cracking, fracturing, peeling, erosion, etc.), a special experimental methodology—blind bioanthropological taphonomy analysis—was conducted during bioanthropological analysis without primary knowledge of archaeological contextual information on grave disturbance (reopened, intact). This approach aids bioanthropologists in maintaining objectivity while examining the effects of grave disturbance on skeletal remains. It promotes a clear understanding of bone taphonomy and the signs of bone weathering linked to the reopening of graves. By differentiating between the taphonomic traces of bone weathering that happened during or after past grave reopenings and those that occurred during excavations, researchers can reduce the risk of interpretative errors. This paper presents findings on grave reopening practices during the late Sarmatian period in the south Pannonian Plain, based on bioarchaeological research, subaerial weathering, and archaeothanatology. We will differentiate the types of reopenings, examine the presence of grave construction during these events, and analyze the possible timing. This research will provide insights into who reopened graves, when and how they did so, and the sociological reasons behind these practices, integrating both bioanthropological and archaeological perspectives.

**1194. INTERPRETING GRAVE RE-OPENINGS OF THE SARMATIAN-PERIOD CEMETERIES IN THE GREAT HUNGARIAN PLAIN**

**Contribution format:** Oral  
**Contribution authors:** Zsófia Masek (HUN-REN Research Centre for the Humanities Institute of Archaeology)

The Sarmatian-period cemeteries (1st-5th centuries AD) in the Carpathian Basin have been subject to systematic looting, a phenomenon that can be attributed, at least in part, to the high proportion of visible grave markings in these cemeteries. The monuments, distinguished by enclosures and mounds in the landscape, remained visible for a longer period, providing an accessible location for grave robbing during the turbulent centuries that followed. The nature of looted graves can vary significantly, and various attempts have been made to classify them. The present study puts forward the hypothesis that this condition may have obscured post-burial interventions that may not have been aimed at simple grave-robbing (i.e., the acquisition of objects). There are separate analyses of the find material from the Sarmatian rite tumuli and the burials surrounded by enclosures. The most common interpretation of the finds from the mounds is that they represent mortuary offerings. The finds of the burials surrounded by ditches show a selective and repetitive pattern of behaviour, which is interpreted as the result of a deliberate deposition process. The features associated with the re-opening of the burials, which yielded archaeozoological material, are treated separately and with uncertainty. In their case, a profane interpretation was more common, interpreting the finds as materials mixed in during robbery. In this presentation, I will attempt to use an interpretive framework to evaluate together the post-burial artefacts found in the enclosures placed in deposition zones, in the layers of the barrows, and in the re-opened burials. Through case studies, I will suggest that it is now possible to hypothesise that some of the grave openings can also be seen as traces of commemorative rites that took place in these liminal spaces.

**2182. RAIDING PRACTICE IN THE 5TH CENTURY CEMETERY NEAR SAJÓSZENTPÉTER (NORTHERN HUNGARY)**

**Contribution format:** Oral  
**Contribution authors:** Krisztián Tóth (Dornyay Béla Museum)

In September 2011, the trial excavations of the main road No 26 at Sajószentpéter have revealed three skeletal graves with few grave goods in the site of Harmadik-vető, 3., along with several Roman Period Germanic settlement features. Based on the results of this excavation, the full scale preliminary excavation conducted during the autumn of 2012. A total of 22 burials were found on the site, belonging to a cemetery. Based on the grave goods it can be dated of the first half of the 5th century. The orientation of the burials shows widely variation and about 50% of them were young individuals. The majority of the graves clearly identifiable with traces of robbery concerned the burials of these younger deceased. In one case, the skeletal remains of a horse were documented in the robbery pit, which clearly showed signs of deliberate manipulation. The paper seeks answers to the question of postmortem disturbance and its various aspects through the chronology and cultural connections of the cemetery.

**944. GRAVE REOPENING IN THE SOMEȘUL MIC REGION (NORTH-WESTERN TRANSYLVANIA) DURING THE GEPIDIC PERIOD**

**Contribution format:** Oral  
**Contribution authors:** Alpár Dobos (National Museum of Transylvanian History)

Grave reopening was a large-scale phenomenon in early medieval Europe. Recently, some areas in Western and Central Europe have been subjects of in-depth analysis that revealed both common trends and regional differences related to this practice in the 5th–7th centuries. During the Gepidic Period (approx. the second half of the 5th century – first two-thirds of the 6th century) Transylvania stood out as one of the areas with the highest proportion of disturbed graves. Despite this, comprehensive research on this topic has only recently been initiated and remains in its early stages. In the second half of the 5th century, a power centre emerged in the valley of the Someșul Mic River, in the surroundings of the ancient city of Napoca (modern-day Cluj-Napoca). This is evidenced by the two princely graves in Apahida and the treasure from Cluj-Someșeni. The importance of the region is signalled not only by finds related to the social elite, but also by several settlements and cemeteries from the 5th–6th century. Most of these were only partially excavated (in many cases just a few graves), some of them without an accurate documentation referring to the grave reopening. Large-scale rescue excavations, prompted by infrastructural investments in the last few decades identified several new cemeteries, some of which have been extensively or fully excavated. Unfortunately, most of these are still unpublished. The presentation will be a micro-regional study focusing on the grave reopening practices in the valley of the Someșul Mic River and its tributaries, based on the available information. The backbone of the research will be represented by two unpublished sites from Șardu and Topa Mică, though data from older and partially published excavations will also be included. Questions related to challenges of documentation of grave reopening during rescue excavations will also be addressed.

**453. DO WE HAVE REOPENED GRAVES IN THE EARLY MIDDLE AGES IN SLOVAKIA?**

**Contribution format:** Oral  
**Contribution authors:** Lucia Nezvalová (Archaeological Institute of Slovak Academy of Sciences)

Grave reopening occurs in various cultures and territories across the world. There is always the same question asked. What can be the cause of that? In some cases, the reasons are relatively clear, in others not. There have been several interpretations of this custom in Slovakia in the period from the 9th to 12th centuries, but there has been hardly any discourse on why these graves were considered to be reopened. In this paper, I would like to focus on the question of whether we have any graves that can be interpreted as reopened in accordance with current research standards. 387 graves from this period were classified as those with posterior interventions and their ratio varies significantly from site to site. There is a cemetery where up to 65% of graves were supposed to be damaged, but we also have ones where no such grave is mentioned. As a reference, use the neighbouring territory of Moravia, which was from the 9th to 10th century and also ruled by the Moymirid dynasty, so the burial customs can be similar.



1350. ARCHAEOLOGICAL AND ANTHROPOLOGICAL PERSPECTIVES ON GRAVE DISTURBANCE AT THE LATE AVAR PERIOD SITE OF NUŠTAR

**Contribution format:** Oral  
**Contribution authors:** Zrinka Premuzic (Faculty of Humanities, University of Zagreb) – Anita Rapan Papesa (Vinkovci Municipal Museum) – Zeljka Bedic (Centre for Applied Bioanthropology, Institute for Anthropological Research) – Mario Novak (Centre for Applied Bioanthropology, Institute for Anthropological Research | Faculty of Humanities, University of Primorska)

The primary goal of this study is to compare archaeological and anthropological evidence of grave disturbance at the Late Avar Period site of Nuštar in eastern Croatia, but also to consider and highlight the contemporary disruption that took place during the site’s discovery. The archaeological excavation, carried out in 2011, revealed that several burials had been disturbed shortly after burial as witnessed by the changes in burial fill, disturbed grave goods, and scattered skeletal remains of the deceased. According to the archaeological context, about 20 graves exhibit these kinds of phenomena. Some of these cases can be traditionally attributed to grave robbery, which is why the artefacts are absent. However, in a few instances, we documented the disturbance of skeletal remains, but the finds remained intact. Consequently, it is necessary to look for alternative explanations. Unfortunately, human skeletal remains from the site are poorly preserved so most of the burials that showed indications of disturbance could not be properly studied. However, several skeletons bear evidence (postmortem modifications such as changes in colour and bone fragmentation) of exposure to elements after being disturbed. Here we will present these cases and discuss the possible causes. The funerary customs of the people of Nuštar are illuminated by this interdisciplinary perspective, which offers an entirely new perspective at the past.

848. REOPENED BURIALS IN EARLY MEDIEVAL WESTERN EUROPE: FROM GRAVE ROBBING TO INTER-ACTIONS WITH THE DEAD

**Contribution format:** Oral  
**Contribution authors:** Alison Klevnäs (Uppsala University)

Across Europe early medieval archaeologists have long recognised significant numbers of graves displaying evidence for intentional post-burial disturbance of skeletons and artefacts. Practices of reopening and manipulating graves soon after burial, traditionally described — and dismissed — as ‘robbing’, have now been documented at cemeteries from Transylvania to southern England. In recent years a series of studies in western Europe have investigated in detail the evidence for the timing and processes of reopening in several geographic areas. Brought together, this new work has resulted in an argument that the reopening of individual graves and removal of selected artefact types should be seen as an aspect of mortuary custom. This treatment of the dead became widely shared for a couple of generations from the later sixth century CE, but in western Europe is rarely seen in earlier phases of the first millennium. This paper will illustrate how these conclusions have been reached through taphonomic analysis of disturbed graves. It will summarize the current state of research and point to some of the many questions that remain open, not least the relationship of reopening practices in western Europe to the substantial earlier evidence in central and eastern Europe.

1254. THE PRESENTDEAD PROJECT: INVESTIGATING INTERACTIONS WITH THE DEAD IN EARLY MEDIEVAL CENTRAL AND EASTERN EUROPE (5TH TO 8TH CENTURIES CE)

**Contribution format:** Oral  
**Contribution authors:** Edeltraud Aspoeck (University of Graz)

The ERC PresentDead project seeks to explore the practical, mental, and emotional aspects of human engagement with the remnants of the deceased (including graves, human remains, and artefacts) in early medieval central and eastern Europe (5th to 8th centuries CE). It utilizes an interdisciplinary approach combining scientific methods, technical solutions, and new theoretical approaches to investigate various contexts of interaction based on archaeological and textual evidence. In early medieval cemeteries bodies were typically buried individually, often accompanied with elaborate objects. Many graves show evidence of human re-entries shortly after burial. This project challenges the notion that disturbed graves offer inferior evidence and argues that these interventions provide significant insights into early medieval practices related to the dead. The project focuses on investigating cemeteries and out-of-cemetery contexts in four central- and eastern European regions with the following objectives: 1. Exploring the range of practices and contexts in the archaeological records. 2. Analyzing textual perspectives across various genres. 3. Integrating material and textual perspectives through an innovative technical solution for semantic data integration. To achieve the archaeological goals, the project outlines methodological objectives: 1. Consolidating methods and establishing research protocols. 2. Developing strategies to address deficiencies in archaeological data. The development of digital tools, which transition from high-resolution to low-resolution evidence, will be fundamental to the project’s approach.

1178. HISTORICAL PERSPECTIVES ON DESPOILING THE DEAD IN THE EARLY MIDDLE AGES

**Contribution format:** Oral  
**Contribution authors:** Thom Gobbitt (Institut für Antike, Karl-Franzens Universität, Graz)

Investigating human interactions with materials of the dead in the ERC PresentDead project, involves a historical approach as well as an archaeological one, critically examining the extent that these disciplines can inform and be informed by each other. I shall outline the historical and literary approaches taken in the project to early-medieval historiographical and legal texts, and present research findings and observations from two historical case studies from sixth-century Francia on grave re-opening and the despoiling of the dead: The laws of the Pactus Legis Salicae (ed. Eckhardt 1962), and Gregory of Tours, Decem Libri Historiarum [Ten books of Histories] (ed. Krusch and Levison 1951). Both of these texts have taken central roles in understanding the intellectual, social and moral framework underlying interpretation of reopened and “robbed” graves from the early middle ages: after all, the Pactus Legis Salicae offers two pairs of laws focused on the despoiling of dead bodies both before (\$14.9 & \$55.1) and after burial (\$14.10 & \$55.4), while Gregory’s account of Duke Guntram Boso’s servants robbing the recent grave of his wife’s relative in the church of St Remedi drips with distaste - and with glee at the ultimate (divine) retribution he incurs. Through “close readings” of these historiographical and legal texts, I shall argue that each reflects only a facet of early medieval attitudes to grave reopening and the despoiling of the dead, deployed for rhetorical ends, and which instead leave space for wider readings of social attitudes that may well compliment rather than contradict archaeological interpretations. Bibliography Eckhardt, Karl August, ed. 1962. ‘Pactus legis salicae’. In Monumenta Germaniae Historica, Leges nationum Germanicarum, 4.1:1–236. Hannover: Hahn. Krusch, Bruno, and Wilhelm Levison, eds. 1951. ‘Gregorii Episcopi Turonensis Libri Historiarum X’. In Monumenta Germaniae Historica, Scriptores Rerum Merovingicarum, 1.1:1–68. Hannover: Hahn.

1405. DIGGING UP THE DETAILS: GRAVE REOPENINGS IN 6TH-CENTURY HUNGARY

**Contribution format:** Oral  
**Contribution authors:** Regina Csordás (Eötvös Loránd University, Budapest) – Eliza Orellana-González (University of Graz) – Astrid Noterman (Uppsala University)

The reopening of graves in early medieval cemeteries has long intrigued researchers, as it offers insights into the complex dynamics of memory, rituals, and material reuse. This paper examines reopened burials in 6th-century cemeteries in Transdanubia (Hungary), aiming to shed light on the mortuary practices of these communities and their adaptation to shifting socio-political and cultural landscapes. The Langobards, a Germanic group that occupied the western part of the Carpathian Basin in the 6th century CE before migrating to Italy, left behind cemeteries that provide critical insights into their mortuary practices. Among these, grave reopenings stand out as a significant yet enigmatic phenomenon. This study uses bioanthropology and archaeoethanatology methods to analyze skeletal remains and associated artifacts, uncovering clues about post-burial interventions. By examining evidence of skeletal manipulation, taphonomic changes, and selective object removal, we aim to distinguish different types of interventions and deepen our understanding of the taphonomic processes within these graves. Through an interdisciplinary approach, this research could provide insights into Langobard mortuary practices and their place within Migration Period burial traditions.

1392. ANALYSING RE-ENTRIES INTO GRAVES AT THE INHUMATION CEMETERY OF ACHAU, LOWER AUSTRIA (7TH-8TH C. CE)

**Contribution format:** Oral  
**Contribution authors:** Jasmin Özyurt – Eliza Orellana-González (University of Graz) – Astrid Noterman (Uppsala University)

The inhumation cemetery of Achau dates to the 7th – 8th century CE and stands out through its richly furnished graves, in particular the multipart belt sets. The cemetery is located south of the Danube in the northern part of the Viennese basin and was discovered in 2014. Around 200 graves were identified through geomagnetic prospection, but further graves are expected outside of the prospected area. In 2020 first excavations were carried out, revealing 19 graves. Generally, Avar period graves vary a lot regarding the proportion of graves that have been reopened, and with 12 out of 19 graves being found disturbed and parts of the grave goods removed their proportion in Achau is rather high. This presentation will focus on the outcomes of applying the PresentDead research protocols for human remains and artefacts, using the results of the 2020 excavations of the cemetery of Achau as a case study. We will introduce our research questions, the research protocols and discuss individual graves and the initial results of our analysis. We will address topics such as the original appearance of the grave and how the reopening modified it; when and how the reopening took place; what types of artefacts were considered as worthy of recovery and what does it tell us about the motivations of the people who did it.



2099. MICRO-ARCHAEOLOGY AT THE 7TH-8TH C. CE CEMETERY ACHAU, AUSTRIA: A HIGH-RESOLUTION STUDY OF FORMATION PROCESSES

**Contribution format:** Oral  
**Contribution authors:** Eliza Orellana-González (University of Graz) – Rebecca Bade (Austrian Academy of Sciences) – Fabian Benedict (Novetus GmbH) – Laura Elmer – Leona Münzer – Jasmin Özyurt (University of Graz) – Caroline Partiot (Austrian Academy of Sciences) – Selina Michelle Sima (University of Graz) – Silvia Wiesinger (Austrian Academy of Sciences) – Edeltraud Aspöck (University of Graz)

The analysis and interpretation of reopened early medieval inhumation graves requires an understanding of their formation processes, i.e. the natural and human factors that contributed to the development of the archaeological evidence of the grave. To increase the understanding of these processes, the PresentDead approach includes a small number of high-resolution case studies that will inform the interpretation of archaeological deposits where there is less information available. In this paper we will present on our ongoing fieldwork at the 7th to 8th c. CE inhumation cemetery of Achau in Lower Austria, where previous excavations discovered a high number of reopened graves. The excavations started in 2024, revealing a grave of a child and a grave of an adult (trench 1), both without any evidence for post-depositional intrusion (so far), whilst in trench 2 evidence of an adult grave with the typical outline of a secondary pit with which the grave was reopened was visible. The graves are excavated with a micro-archaeological protocol including: 3D single-finds recording, including all human bone elements in the ‘disturbed’ parts of a grave with a tachymetre; strategic soil sampling (disturbed and undisturbed samples) and wet-sieving of sediments. We will present the excavation results and the ongoing analysis of the archaeological evidence and its formation.

830. DISTURBED?: A COMBINED MICROMORPHOLOGICAL AND LUMINESCENCE APPROACH TO CHARACTERIZING INTERMENT AND GRAVE DISTURBANCE

**Contribution format:** Oral  
**Contribution authors:** Daniel Fallu – Sofia Voutsaki (University of Groningen)

Understanding the chronology of burial grounds can often be as complex as urban settlement spaces. Initial excavation/construction of burials and monuments can be obscured or obliterated through secondary burial, later re-use, and re-openings. As communities and their social ties become more complex, so often do the burial grounds, resulting in further elaboration. Often, absolute and relative dating methods are insufficient for distinguishing short or closely spaced events. Geoarchaeological methods, namely soil micromorphology and portable optically stimulated luminescence (pOSL) profiling are particularly well-suited for understanding burial history. While both methods allow for the identification of archaeological deposits and site formation processes, portable optically stimulated luminescence (pOSL) profiling adds the ability to better distinguish between gradual and more sudden deposition and to better characterize relative age independent of ceramics. Both methods have proven useful in disentangling depositional history in urban and agricultural contexts, and should permit a greater understanding of the “life history” of cemeteries and burials. Here, we present preliminary results of the geoarchaeological investigation of the 18th-15th century BCE North Cemetery at Ayios Vasileios in Lakonia, Greece. A novel combination of soil micromorphology and pOSL profiling was applied to better understand the formation of the North Cemetery and the use history of the individual burials. This novel combination of methods allows for the distinction between disturbed and undisturbed soils in the burial themselves, as well as the episodes of fill used to build up the cemetery over time. The results will be discussed in light of the recently published absolute chronology of the site with the aim of elaborating on alterations to the cemetery, including disturbance and reopening. Attention will be paid to the further applications of these methods, including in-field hypothesis testing.

37 ...AND THE LORD GOD FORMED MAN OF THE DUST OF THE GROUND... NEOLITHIC FIGURINES – PRODUCTION, HANDLING, DISPOSAL

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** Neolithic, Images, Material Culture, Ritual Practices, Find Distribution, Fragmentation  
**Session organisers:** Raiko Krauss (Tübingen University) – Dan Ciobotaru (National Museum of the Banat, Timisoara) – Nenad Tasic (Belgrade University)

SESSION ABSTRACT

Human and animal figurines are among the most fascinating artefacts of the Neolithic period. Against the background of numerous new discoveries in recent years, we want to gain an insight into the production techniques and various practices of handling the figurines. An important aspect in the past was the fragmentation and, in some cases, reassembly of the figurines. We want to investigate the question of whether the observations can be confirmed or falsified on the basis of the more recent excavations. Finally, we will also look at the contexts in which the artefacts were found, which raises the question of how they were deposited and finally put out of use. Starting from research on the Neolithic in Anatolia, the Aegean and south-east Europe, we would like to extend the geographical focus to the entire Old World, especially Europe, West Asia and North Africa. Contributions from the social sciences, behavioural biology and social anthropology are also very welcome.

CONTRIBUTION ABSTRACTS

49. IMAGES OF STONE AGE PEOPLE - SPACE, TIME AND CONTEXTS - AN INTRODUCTION

**Contribution format:** Oral  
**Contribution authors:** Raiko Krauss (Tübingen University) – Nenad Tasic (Belgrade University) – Dan Ciobotaru (Museum of the Banat, Timisoara)

Hardly any other find genre of the European Neolithic is as fascinating as human figurative sculpture. However, numerous new discoveries in the area of northern Mesopotamia from the Pre-Ceramic Neolithic period have shed new light on the figurative sculpture of the European Neolithic. There are also numerous new finds from south-east and central Europe. It is time to discuss the current finds against the background of these new discoveries and, if necessary, to re-evaluate them. What contexts do the figurative representations come from? What or whom do they represent? How can their use be reconstructed? Are there comparable find patterns at different sites? What role do human representations play in other spatio-temporal contexts and can these be transferred to the Neolithic period? The context in which the figurines were found will therefore play a major role alongside questions of production technology. These are the questions we want to address and discuss together in this session.

1586. FROM CLAY TO SACRED FORMS: AN ANTHROPOMORPHIC FIGURINE FROM LIMBA AND ITS ROLE IN FIRST NEOLITHIC TRANSYLVANIAN RELIGIOUS LIFE

**Contribution format:** Oral  
**Contribution authors:** Anamaria Tudorie – Marius Ciuta (Lucian Blaga University from Sibiu)

The geo-spatial position of the archaeological site of Limba-Oarda de Jos (Alba County, Romania), allows its “residents” to control the natural connections between Transylvania and the adjacent areas (Banat, Pannonia, the Danube Plain, Oltenia), due to the fact that the geo-morphological characteristics and the exact location is at the intersection of major communication routes (Mureş, Sebeş and Ampoi Rivers), have made the Neolithic communities that entered the Transylvanian Depression to use the terrace of this site for habitation. This is also the case of the first impulse of Neolithization, characterized by the presence of white on a red painted pottery. Recent excavations have led to the discovery of inhabitation features and specific inventories, including plastic-art objects. A fragmentary anthropomorphic female statuette, discovered in the named Bordane sector (exactly on the northern edge of the terrace), showing specific shapes, drawn our attention to the way elements are to be interpreted as belonging to spiritual life spread in the North Danube area. On this occasion, analyzing similar elements from contemporary sites from this geographic area (Gura Baciului, Şeuşa, Miercurea Sibiului, Cristian, Ocna Sibiului), the authors launch a series of working hypotheses on how religious ideas were reproduced in the daily life of the first Neolithic groups in Transylvania.

441. REPRESENTATIONS OF ONAGERS IN THE NEOLITHIC SETTLEMENT OF LIMBA-OARDA DE JOS (ALBA COUNTY, ROMANIA)

**Contribution format:** Oral  
**Contribution authors:** Ciuta Marius (Lucian Blaga University of Sibiu)

The archaeological site of Limba-Oarda de Jos (Alba County, Romania), located at the intersection of multiple natural communication routes, has provided, since its initial mentions in the specialized literature in the mid-20th century, significant information regarding the succession of Neolithic settlements on the high terrace of the Mureş River. This terrace is situated at the southwestern edge of the Transylvanian Depression, at the point of contact with the Mureş Corridor that connects the region westward to Banat, south-westward to the Danube Gorge, and southward to Oltenia. A distinctive feature of the material inventory of the Neolithic settlements at this site - identified during surface surveys (1970), systematic excavations (1995–2001), and preventive archaeological investigations (2016–2020) - is the exceptionally high number of anthropomorphic figurines. The early phases of



the Vinča culture (phases A and B) alone have yielded over 400 such anthropomorphic and zoomorphic “idols.” A particularly intriguing case is represented by the zoomorphic figurines crafted not only from ceramics but also from alabaster - a material not native to the region. The presence of alabaster figurines within Transylvanian sites has raised numerous questions among Neolithic researchers since the 1970s (N. Vlassa). Our study focuses on the analysis of artifacts depicting equids (onagers?) in the early Vinča contexts, discovered at this site, as well as the interpretation of their significance and function. This is particularly noteworthy given the absence of representations of other animals, such as ovicaprids, bovines, or wild species.

1871. REIMAGINING NEOLITHIC FIGURINES FROM VINČA

**Contribution format:** Oral  
**Contribution authors:** Nenad Tasic (Department of Archaeology, Faculty of Philosophy, University of Belgrade)

In this paper, I present examples contributing to the reconstruction of Neolithic figurines from Vinča. Excavations at Vinča have been ongoing since 1908, revealing a 9-meter-thick cultural layer with rich archaeological material. Over decades, this material has provided insights into chronology and cultural change over 800 years of settlement at Belo Brdo. The collection of archaeological material includes over 1,300 Neolithic terracotta figurines. The figural plastic art from Vinča has been the subject of numerous studies and interpretations, yet the role these objects played in the past remains only partially understood. Stylistic and typological analyses, contextual studies, clay composition analyses, statistical evaluations of gender representation, fragmentation studies, and chaîne opératoire assessments have all been conducted. However, a critical step toward understanding the function of these objects has yet to be achieved. On the other hand, the reconstruction of their original appearance has not been the focus of scientific studies, with previous attempts being largely limited to reconstructions for exhibition and presentation purposes. This study employs an interdisciplinary approach, integrating archaeological, technological, and material science data while adhering to authenticity and ethical transparency. The methodology includes analysis of archaeological contexts, chemical analysis, material identification, and interpretation of stylistic and symbolic aspects, differentiating visually reconstructed elements from preserved originals. As most figurines from Vinča are fragmented, this study reconstructs those with sufficient elements to approximate their original appearance. It examines missing parts, original coloration, the analysis of “stratigraphy” of decorating procedures; the ware of use marks analysis; the reconstruction of lost decorative elements, and, in particular, the reconstruction of hairstyles based on traces of paint and “fitting points” such as perforations or protuberances found on the heads of certain terracotta figurines. This research aims to enhance understanding of these figurines’ function in Neolithic society, whether ritual, religious, or symbolic.

1836. FIGURINES CURATING HOUSEHOLD BIOGRAPHIES IN LATE NEOLITHIC VINČA CULTURE VILLAGES

**Contribution format:** Oral  
**Contribution authors:** Milos Spasic (Belgrade City Museum)

The biographies of Vinča houses are distinctly reflected through numerous instances of spatial reorganization and the symbolic significance ascribed to specific areas of the dwellings, as well as the diversity of commemorative deposits placed within them. In the context of prehistoric settlements, commemorative deposits are generally understood as assemblages of various objects deposited during specific activities carried out by the house’s inhabitants. These deposits, which mark key events such as the construction and abandonment of dwellings, feasts, celebrations, and other ritual and ceremonial practices, have been identified in various houses across prehistoric Europe. However, within the Vinča culture context, the practice of commemorative deposition has been the subject of a significantly smaller body of research. This study explores the ritual practice of depositing clay figurines within Vinča houses, focusing on their role in commemorating the beginning and the end of life in the house. Figurines, therefore, emerge as active social agents in the curation of household biographies, contributing to the formation and negotiation of the social and symbolic landscapes of Neolithic communities.

98. SHIFTING NUMBERS AND THE POWER OF REPETITION: FIGURINE DISTRIBUTION AND DESTRUCTION IN THE NEOLITHIC OF CENTRAL AND SOUTHEASTERN EUROPE

**Contribution format:** Oral  
**Contribution authors:** Valeska Becker – Rune Iversen – Rebecca Bristow (University of Copenhagen)

An overview of figurines and other figurative representations in southeastern and central Europe shows that they are not spread evenly and that their distribution changes in the course of time: regions formerly overflowing with anthropomorphic and zoomorphic figurines suddenly turn empty, and some areas have never even adopted the custom of using these objects at all. In the recent project “A World without images” located at Copenhagen University, we attempted to map figurative finds in southeastern and central Europe in the time between 6000-3000 calBC with the help of a large database. The aim was to shed light on the disappearance of figurines and to find explanations for the discontinuation of their use. In some cases, external or internal crises seem to play a

role, although prehistoric societies could react quite differently to those. For example, after the end of the Linear Pottery Culture, figuration ceased in its western areas (Stroked Pottery Culture, Hinkelstein-Großgartach-Rössen), whereas further to the east, the Lengyel Culture followed with thousands of figurines – apparently two different strategies for dealing with a crisis. The large numbers of figurines in the Lengyel Culture and their curious manufacturing technique – they were assembled from single body parts, which yielded in their breaking along predetermined fault lines – can only be explained by the destruction being one, if not their only purpose. The technique also led to large numbers of very similar fragments. It seems that the repeated action of breaking a figurine and producing similar fragments every time can be read as a means to establish and strengthen a community and to create an equal outcome of a ritual for all its members.

1520. THE WORLD CREATED OF CLAY: PRECUCUTENI-CUCUTENI-TRYPILLIA FIGURINES, GENERAL VIEW

**Contribution format:** Oral  
**Contribution authors:** Nataliia Burdo (Kyiv Regional Archaeological Museum) – Mykhailo Videiko (Kyiv Metropolitan Borys Grinchenko University)

A lot of anthropomorphic and zoomorphic plastic was used in the Precucuteni-Cucuteni-Trypillia cultural unity. Technologically, most of the anthropomorphic and zoomorphic figurines were made of the same material as the pottery. A special category of anthropomorphic figurines was produced of mass with an admixture of grains. Some of the schematic anthropomorphic figurines are made carelessly, probably for single use. Other figurines are carefully processed, ornamented, endowed with detailed features, decorated. The modeling of some of the anthropomorphic figurines from two vertical halves has been recorded, which is due not to technology, but to sacred aspects. The deformation of some zoomorphic figurines indicates that they could be used in rituals without prior firing. Among the zoomorphic figurines there are carefully sculpted and ornamented specimens. In one case, a zoomorphic figurine was modeled from two vertical halves. Anthropomorphic plastic is mostly fragmentary. The context of finds of anthropomorphic plastic in settlements: among the ruins of burned dwellings, in pits (in Maydanetske fragments from one figurine and pits of different dwellings), embedded in plaster (Nebelivka). Non-fragmented anthropomorphic figurines were found in cult sets (Poduri, Isaia, Malinovtsi, Konovka), sometimes accompanied by ceramic chairs (Tymkove). Zoomorphic figurines are much more often found whole. The context of finds of zoomorphic plastic in settlements among the ruins of burned dwellings, in pits, in particular in the form of a set with tokens and miniature terracotta objects. Female figurines were found in some graves of the Vykhvatyntsi cemetery. The fragmentation of the anthropomorphic figurines and the context of their discovery indicate that they were most often used in sacrificial rituals, during which they were deliberately fragmented. Zoomorphic figurines can probably be divided into two groups. Most were used without fragmentation as substitutes for sacrificial animals.

1487. PORTABLE IDENTITIES: NEOLITHIC CLAY FIGURINES IN A CROSS-BALTIC SOCIAL NETWORK

**Contribution format:** Oral  
**Contribution authors:** Jenni Lucenius (Turku university) – Torbjörn Brorsson (Ceramic Studies) – Niklas Stenbäck (Independent)

This presentation explores Neolithic clay figurines from the Åland Islands and Southwest Finland in the northern Baltic Sea, focusing on their provenance, production techniques, and social significance. A total of 42 figurines from the Comb Ceramic Ware and Pitted Ware Culture traditions were analyzed using ICP-MA/ES chemical analysis and thin-section petrography to determine their raw material sources and fabrication methods. Comparisons with Pitted Ware figurines from Sweden, using extensive previously published data, provide further insights into their distribution and cultural context. The results indicate that while most figurines were made from local clays, a significant proportion originated from non-local sources, suggesting interregional movement and exchange within a cross-Baltic social network. Recent excavations on the Åland Islands and in Sweden have uncovered new clay figurines, offering valuable opportunities to contextualize these findings and deepen our understanding of their role in Neolithic societies. These discoveries contribute to a broader framework for interpreting the figurines’ social significance, particularly in relation to mobility, identity, and cultural interaction in the Baltic region. Furthermore, the figurines’ compositions reveal culturally significant choices in clay recipes, including calcareous and plant-based tempers, suggesting symbolic meanings tied to identity and place. By examining these figurines within the wider context of Neolithic social networks, this study enhances our understanding of mobility, identity, and social practices among early hunter-gatherer communities in northern Europe.

1627. “THEN THE LORD GOD MADE A WOMAN FROM THE RIB...” – BONE ANTHROPOMORPHIC FIGURINES FROM THE EASTERN BALTIC, 4000–2000 BC

**Contribution format:** Oral  
**Contribution authors:** Tõnno Jonuks (Estonian Literary Museum)



Around 4000 BC, the Eastern Baltic witnessed the emergence of a new artistic tradition—small, flat figurines crafted from bone sheets in anthropomorphic and zoomorphic forms, including representations of birds and snakes. Many of these figurines have been recovered from settlement occupation layers, while some originate from burial contexts, providing further opportunities for interpretation. This presentation focuses specifically on anthropomorphic figurines and their connections to other non-human species. While previous studies of these figurines have primarily explored their meaning and symbolism, this presentation examines their production and use. Use-wear analysis reveals significant variations in production skill, with some figurines displaying evidence of intensive and even crude handling. As these artefacts were not created for purely aesthetic purposes but were actively used within the society, the wear marks they exhibit are particularly noteworthy. The figurines are well preserved, yet surface scratches suggest prolonged use, with some ultimately being deliberately broken. A detailed analysis further challenges the previously held assumption that the Eastern Baltic anthropological figurines are asexual or female. Some exhibit also features indicative of male characteristics, although it remains uncertain whether distinctions between male and female were of particular significance in this context.

578. MINIATURE STONE ANTHROPOMORPHIC FIGURINE FROM THE SETTLEMENT MOUND TURSKOTO KYUSHE NEAR ELHOVO TOWN, SOUTHEAST BULGARIA

**Contribution format:** Poster  
**Contribution authors:** Todor Valchev (Historical museum - Yambol)

Anthropomorphic plastic art is one of the main elements of prehistoric cultures and remains an important source providing information about the spiritual world of the first farmers on the Balkan Peninsula and in Bulgarian lands. According to the Bulgarian chronological system, the Neolithic dates from 6100 to 4900 BC, as the Late Neolithic period covers the last 600 years. The most common anthropomorphic figurines during the Prehistoric period are made from clay. Much rarer, they are made from marble, stones, or shells. Using the last materials, the prehistoric masters made stylized female figurines without many individual features. The aim of the poster is to present a miniature stone anthropomorphic figurine. It was found during the rescue excavation of the prehistoric settlement mound Turskoto kyushe near Elhovo town. It’s made from green stone. The figure is 2.2 cm long and only 0.2 cm thick. It dates to the Late Neolithic Karanovo IV culture (5200 – 4900 BC). Anthropomorphic plastic art is connected with the religion and world view of Prehistoric people. According to some scholars, human figurines present images of the Great Mother-goddess or goddess Mother-Earth, and they are associated with beginning, fertility, and the continuation of the family through women. Others support the idea that the anthropomorphic figurines are connected with rituals associated with newborn or newly conceive children, and their initiation into the prehistoric society. During this un-written period of human history, it’s very hard to separate sacred from common, but without doubt can say that the miniature stone figure from Turskoto kyushe was charged with unnatural power.

2147. FIRST ENSISHEIM TYPE IDOL NORTH OF THE CARPATHIANS? SOME TAPHONOMIC DILEMMAS AND POSSIBLE INTERPRETATIONS

**Contribution format:** Poster  
**Contribution authors:** Marcin Szeliga (Institute of Archaeology, Maria Curie-Skłodowska University in Lublin) – Grzegorz Osipowicz (Institute of Archaeology, Nicolaus Copernicus University in Toruń)

Bone artefacts represent one of the least numerous categories of finds of the Linear Pottery culture (further LBK). Despite this, the current state of research and source data justify the statement that the processing of this raw material by the communities of this culture was primarily aimed at the production of everyday tools, and to a much lesser extent other products, including in particular non-utility, symbolic or even cult objects. The latter, rarest group of finds seems to include the specimen that is the subject of this presentation, discovered within the LBK settlement at stan. 6 in Tominy, Ożarów commune, in the upper Vistula River drainage basin, in southern Poland. It shows close similarity to rare Neolithic figurative representations from Western Europe, including only three LBK specimens from France, known in the literature as Ensisheim type idols. It is currently the only early Neolithic bone figurative representation of this type on the northern side of the Carpathians, and one of the few Neolithic bone artefacts in Central Europe interpreted as anthropomorphic idols. These circumstances, as well as some marked differences between this specimen and other finds, pose serious interpretative problems, both functionally and culturally. Their presentation, as well as an attempt to clarify them, is the primary focus of the proposed speech.

38 PAST ECOSYSTEMS AS DRIVERS OF CULTURAL ECOLOGY: NEW APPROACHES IN THE ANALYSIS OF THE HUMAN-PALAEOENVIRONMENT INTERACTIONS

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Regular session  
**Session keywords:** Palaeoecology, Pleistocene, Holocene, Palaeoclimate, Multidisciplinary Approaches, Archaeological Sciences  
**Session organisers:** Ivan Rey-Rodriguez (Centro de Investigación Mariña, Universidade de Vigo, MAPAS lab) – Sandra Bañuls-Cardona (Universitat de València) – Julia Galán (Senckenberg Forschungsinstitut und Naturmuseum, Abteilung Messelforschung und Mammalogie) – Carmen Núñez-Lahuerta (Universidad del País Vasco UPV/EHU)

SESSION ABSTRACT

This session focuses on the critical role of past ecosystems in shaping human societies. It will highlight recent advancements in studying human resilience and adaptation to changing landscapes and climates. Palaeoecological data are essential in reconstructing ancient climate, environment, and biological communities, offering crucial insights for understanding the adaptive strategies of past human populations.Topics of discussion include:(1) The application of multidisciplinary methodologies, such as bioarchaeology, geochemistry, and palaeoecology, to study the long-term ecological relationships that influence cultural changes.(2) Case studies from key archaeological sites that reveal how past ecosystems shaped cultural ecology, providing evidence of resilience, adaptation, and societal transformation.(3) Exploration of new applications for widely used technological tools, such as GIS mapping and ecological niche modeling, to develop models that examine the interrelationships between environmental and cultural changes.The goal of the session will be to foster a deeper insight into how environmental conditions influence cultural adaptation, resource use, and societal organization. Presenters will discuss how prehistoric and historical ecosystems impacted human behavior in the past, emphasizing the complex feedback loops between ecological shifts and cultural evolution. Moreover, this understanding is increasingly relevant in the context of the contemporary global climatic crisis.

CONTRIBUTION ABSTRACTS

57. GOING BEYOND THE “BOS/BISON” CLASSIFICATION: HOW TEETH CAN HELP US UNDERSTAND PREHISTORIC HUMAN POPULATIONS AND PALEOENVIRONMENTS

**Contribution format:** Oral  
**Contribution authors:** Eugenie Capdepon – Sandrine Costamagno – Emmanuel Discamps (UMR TRACES - Travaux et recherches archéologiques sur les cultures, les espaces et les sociétés) – Allowen Evin (UMR ISEM - Institut des Sciences de l’Evolution de Montpellier)

In Western Europe, the subsistence of Palaeolithic hunter was mainly based on the hunting of Ungulates, such as Cervidae, Equidae and Bovinae. From the latter family, the fossil species *Bison priscus* (Steppe Bison) and *Bos primigenius* (Aurochs) are found in the vast majority of faunal assemblages from archaeological and palaeontological sites since the Middle Pleistocene (aside the less common *Bison schoentensacki* and *Bison bonasus*). However, the distinction between the two genera, Bos and Bison, is difficult due to their strong anatomical similarities. It is therefore common in faunal determinations to group bisons and aurochs under the categories “Bos/Bison” or “Bovinae”, without further clarification. Being able to identify the presence of Aurochs and/or Bison have paleo-environmental implications and provide key information for understanding past human-animal interactions, as the behaviour of these species differs. The Steppe Bison is seen as a highly migratory animal favouring wide-open fields, whereas the Aurochs is described as a sedentary grazer, favouring forest cover. While the two species likely represent different preys for humans, their resemblance challenges our ability to determine the hunting choices of Palaeolithic societies. How can we approach the subsistence strategies of humans without being able to distinguish between “Bovinae” taxa? Detailed morphometric analyses through 2D geometric morphometrics could be the answer to that age-old question. In this communication, we present the first results of the morphological shape analysis of lower molars from a solid Bovinae referential, and henceforth propose a new method to distinguish between bison and aurochs. Coupled with dental microwear texture analysis, this multidisciplinary approach allows us to reconstruct paleoenvironment changes, large herbivores communities and to understand past human populations’ place in those environments.



81. RECONSTRUCTING SOUTHWESTERN EUROPE QUATERNARY ENVIRONMENT AND CLIMATE THROUGH RODENT’S ASSEMBLAGES

**Contribution format:** Oral  
**Contribution authors:** Juan Manuel López-García (Institut de Paleoecologia Humana i Evolució Social (IPHES) | Universitat Rovira i Virgili (URV)) – Mónica Fernández-García (Universitat de Valencia (UV) | Institut de Paleoecologia Humana i Evolució Social (IPHES))

The northeastern of the Iberian Peninsula, with the Pyrenees as a geographical barrier, represents a zone of passage for species, including humans, during most of the Quaternary. Through the studies of small rodents that appear in different archaeo-paleontological sites, we will present a small synthesis of the evolution of the climate and landscape during the Quaternary in this region. From the oldest period, the Early Pleistocene, few sites with a diverse chronology have been identified, such as the Pedrera del Corral d'en Bruach, Vallparadís or La Boella where appears extinct rodents such as *Mimomys medasensis*, *M. savini* or *Microtus (Iberomys) huescarensis*, which are related with a Mediterranean coastal climate, and are indicative of stable watercourses and open landscapes with relatively humid environments. The record in the Middle Pleistocene is also scarce, with only two localities: La Cansaladeta and Mollet. Few rodents remains were recovered in La Cansaladeta, but in Mollet species that already have current representatives such as *M. arvalis* or *M. agrestis* were recorded. This site was interpreted as a transitional phase from a more temperate to a colder moment with a well forest development at the end of MIS 7. From the Late Pleistocene and the beginning of the Holocene the sites diversify, and we find well represented sequences where we can study the evolution of the climate and the landscape, such as the Cova del Rinoceront, the Abric Romaní, the Cova de l'Arbreda or Teixoneres, among others. The rodent associations are already current species and their studies have allowed us to detect important environmentally moments for the history of the climate and the landscape, such as the Eemian (MIS 5e), the LGM (Last Glacial Maximum) or the transition from the Late Pleistocene to the Holocene, 11.7 ka.

562. PRE-HISTORIES PROJECT - INTEGRATING HUMAN LATE PLEISTOCENE RECOLONISATION AND ENVIRONMENTAL HISTORIES IN SCOTLAND

**Contribution format:** Oral  
**Contribution authors:** Leia Tilley – Kate Britton – Tim Mighall – Samantha Jones – Lydia Sam – Anshuman Bhardwaj (University of Aberdeen)

There is now increasing evidence of human life in Scotland during the terminal Late Pleistocene (Late Glacial); the traditional archaeological evidence, however, is limited, and the topic is under-researched. Conversely, there exists more than 40 years, a rich tradition, of palaeoenvironmental research in Scotland. A significant proportion of this data is related to the climate and environments of the region following the end of the Last Glacial Maximum (23,000-19,000 cal BP). As a dataset, this could prove integral to contextualising and improving understanding of the emerging evidence for human lifescapes in Scotland during the terminal Late Pleistocene. Indeed, many Late Glacial pollen datasets demonstrate diverse plant communities that could have been foundational to complex hospitable environments for recolonising human (and animal) groups after the retreat of the last British-Irish ice sheet. However, there is a need to generate more data, particularly from sites in proximity to now-established Late Glacial archaeological sites. Consequently, as an aspect of this study, pollen cores from the sites of Raedykes (Aberdeenshire) and Borland Moss (Lanarkshire) are being analysed. Dating to the Late Glacial and early Holocene, high-resolution pollen and NPP records from these sites enable direct consideration of the environments and ecosystems that Late Glacial human (and animal) communities encountered. Brought together with previously published legacy data spanning decades, visualised through GIS methodologies, the wider aims of the PRE-Histories Project are both to map the shifts in vegetation community composition across the Late Glacial in Scotland and to explore how Late Pleistocene human (and animal) communities may have selected environments for recolonisation. This will further discussion on how these pioneer human (and animal) communities engaged with and adapted to, the characteristically dynamic environments of the terminal Late Glacial in Scotland.

1244. PALAEOECOLOGICAL DYNAMICS DURING THE MIDDLE AND UPPER PALAEOLITHIC IN NORTHWEST IBERIAN PENINSULA: THE COVA EIRÓS ARCHAEOLOGICAL SITE

**Contribution format:** Oral  
**Contribution authors:** Hugo Bal-García (Universidade de Santiago de Compostela | Centro de Investigación Interuniversitario das Paisaxes Atlánticas Culturais) – Iván Rey-Rodríguez (Centro de Investigación Mariña, Universidade de Vigo | Centro de Investigação em Ciências Geo-Espaciais, Universidade do Porto) – Arturo De Lombera-Hermida (Universidad de Oviedo | Centro de Investigación Interuniversitario das Paisaxes Atlánticas Culturais) – Mikel Díaz-Rodríguez (Universidade de Vigo | Centro de Investigación Interuniversitario das Paisaxes Atlánticas Culturais) – Carlos Fernández-Rodríguez (Universidad de

León) – Xosé Pedro Rodríguez-Álvarez (Universitat Rovira i Virgili | Institut Català de Paleoecologia Humana i Evolució Social) – Ramón Fábregas-Valcarce (Universidade de Santiago de Compostela | Centro de Investigación Interuniversitario das Paisaxes Atlánticas Culturais)

Cova Eirós (Triacastela, Lugo, NW Iberia) has the most comprehensive archaeological sequence in the northwest-ern Iberian Peninsula, with stratigraphic levels containing rich and well-preserved fauna and lithic industries spanning roughly from at least 41 kyr calBP to 14 kyr calBP. Within this chronological timespan, several signif-icant climatic events took place, most notably the transition between Marine Isotopic Stages (MIS) 3 and 2, a period during which Neanderthal populations went extinct and were subsequently replaced by Anatomically Modern Humans (AMH). In this context, the zooarchaeological record from levels 3 (~41 kyr calBP), 2 (~36-35 kyr calBP) and 1 (~17 kyr BP) provides a key dataset for reconstructing the climatic and environmental condi-tions under which these hominin groups lived, as well as establishing a paleoclimatic sequence encompassing MIS 3, the immediate transition to MIS 2, and a fully developed MIS 2. To achieve this, a multi-proxy approach based on the faunal record has been employed, integrating methods for paleoclimatic reconstruction (Bioclimatic Model), paleoenvironmental reconstruction (Habitat Weighting) and a traditional zooarchaeological analysis. This comprehensive methodology aims to inferring the ecological conditions in which both Neanderthals and AMH populations thrived and elucidating their interactions with the surrounding animal communities across different time periods. Results indicate that throughout the sequence, climatic conditions were consistently colder and slightly drier than today, yet the region maintained a relatively humid and wooded environment, which may have functioned as a refuge area. Furthermore, the zooarchaeological evidence reveals shifts in territorial exploitation and subsistence strategies among hunter-gatherer groups, with a progressive decrease in occupa-tion intensity over time.

1980. FINDING SUITABLE GROUNDS IN THE DUTCH LOWLANDS DURING THE MESOLITHIC-NEOLITHIC TRANSITION: A MULTIPROXY STUDY

**Contribution format:** Oral  
**Contribution authors:** Ana Smuk (Groningen Institute of Archaeology (GIA), Faculty of Arts, University of Groningen) – Elena Familetto (Department of Physical Geography, Faculty of Geoscience, University of Utrecht) – Mans Schepers (Groningen Institute of Archaeology (GIA), Faculty of Arts, University of Groningen) – Kim Cohen (Department of Physical Geography, Faculty of Geoscience, University of Utrecht) – Marco Madella (CASEs, Department of Humanities, Universitat Pompeu Fabra) – Lucy Kubiak-Martens (Biological Archaeology & Environmental Reconstruction, BIAx Consult, Zaandam) – Hans Huisman (Groningen Institute of Archaeology (GIA), Faculty of Arts, University of Groningen)

The environment and its resources played a crucial role in the decision-making processes of past populations, particularly during the transition to agriculture. For many years, the potential of the Dutch wetlands for crop culti-vation was overlooked, as the waterlogged conditions were considered unfavorable. The “Finding Suitable Grounds” project challenges this perspective by focusing on specific environmental niches in this wetland Neolithic land-scape. We investigate off-settlement-site areas surrounding key archaeological sites to better understand how early farmers engaged with the landscape between 6000 and 4000 cal. yr. BC and how this changes over space and through time. We combine geoarchaeological and palaeoecological approaches to reconstruct and evalu-ate the landscape. Integration of soil micromorphology, 14C dating, and multi-proxy archaeobotany (including macroremains, pollen, phytoliths, and charred herbaceous tissues) are used to assess the suitability for agri-culture of two wetland regions of the present-day Netherlands: the central lagoonal area of Lake IJssel and the Rhine-Meuse delta. These regions experienced constant transformation during the Mesolithic-Neolithic transition with meandering fluvial channels, rising sea levels, and repeated flooding reshaping the landscape. Despite this, certain landscape features—such as river levees—show evidence of human activity and early cultivation, provid-ing valuable insights into how Neolithic communities adapted to and exploited dynamic wetland environments.

1033. RECONSTRUCTING WETLAND ENVIRONMENTS IN THE EARLY NEOLITHIC IN NORTH-WESTERN ROMANIA TO UNDERSTAND SETTLEMENT AND SUBSISTENCE PATTERNS - A MULTIDISCIPLINARY APPROACH

**Contribution format:** Oral  
**Contribution authors:** Jonna Bügenburg – Raiko Krauß (University of Tübingen)– Christopher Miller (University of Tübingen | University of Bergen)

The transition from the Pleistocene to the Holocene in the Balkans marks a time when environmental conditions were particularly favourable for Neolithization. During this period, the environment was largely influenced by the dynamic flow of major rivers and their tributaries, which results in the landscape being composed of both



ancient and recent floodplains. In the Banat region of modern-day Romania, evidence of Neolithic settlements can be traced back to around 6000 BC. The interaction of early settlers of these complex fluvial environments are visible in a diverse and untypical archaeological record, such as high consumption of aquatic resources. The aim of this research is to reconstruct geomorphological dynamics of the floodplains surrounding the early Neolithic tell settlement of Movila lui Deciov in northwestern Romania, situated within a highly complex alluvial fan. By combining geospatial prospection methods such as GIS and LiDAR, sediment core analysis, and absolute dating techniques, this multidisciplinary approach seeks to provide a thorough understanding of the local environmental conditions and their resulting cultural adaptation. Geomagnetic images, historical maps and LiDAR scans uncovered several remnants of paleochannels. Three transects with six sediment cores established a detailed stratigraphy of the floodplain area and revealed deposits from a meandering channel. OSL dates taken from these deposits suggest fluvial activity around 5100 BC, which coincides exactly with the Early Neolithic occupation period, indicating that during this time, the landscape featured an active floodplain with slowly meandering streams. The choice to establish a settlement on a stable point bar terrace was a deliberate choice, allowing the community to adapt to and make use of this Dynamic yet resource-rich environment. Archaeozoological and archaeobotanical data further support this interpretation, revealing that aquatic resources made up 50% of the population's diet, highlighting the crucial role of local landscape exploitation and environmental adaptation.

**414. ECOHUB: RECONSTRUCTING SOCIO-ENVIRONMENTAL DYNAMICS THROUGH ECOLOGICAL NICHE MODELLING (ENM) OF BIRCH FORESTS IN WESTERN EUROPE**

**Contribution format:** Oral  
**Contribution authors:** Barbara Mas Velez (Université Côte d’Azur, CNRS, CEPAM | Seminari d’Estudis i Recerques Prehistòriques (SERP), Universitat de Barcelona) – Neftalí Sillero (CICGE – Research Centre on GeoSpatial Sciences, Faculty of Sciences, University of Porto) – Antonio García-Alix (Departamento de Estratigrafía y Paleontología, Universidad de Granada) – Auréade Henry (Université Côte d’Azur, CNRS, CEPAM)

Silver birch (*Betula pendula*) is a pioneer heliophilous species that grows in boreal and temperate deciduous forests, and it occurs in cold to temperate climates with moderate humidity. Its sensitivity to forest overstory density, disappearing as it becomes denser, makes it an excellent indicator of environmental conditions and anthropogenic impact. In addition, birch has been a useful resource for humans since Palaeolithic times. The ongoing ECOHUB project applies ecological niche modelling (ENM) to investigate long-term human-environment interactions in temperate forests, to explore how silver birch responds to climate variability and how changes in its distribution may influence cultural behaviours, such as settlement patterns and resource management. For this purpose, we used ENM-specialised R packages Biomod2 and Dismo, with the MaxEnt algorithm, to model birch habitat suitability across key climate periods over the last 15,000 years. We obtained current occurrences of *Betula pendula* across Europe (from the Atlantic to the Urals) using the GBIF QGIS plugin, with spatial filtering (10 km<sup>2</sup>) and outlier removal. Contemporary bioclimatic data (1970-2000) were downloaded from WorldClim.org. We are currently evaluating whether the palaeoclimatic dataset Oscillayers (implemented in R) can reliably generate past climate data with a fine temporal resolution (2–1.5 kyr). If this resolution is not possible, we will use the paleoclimate data from PaleoClim.org. To assess the spatial relationship between archaeological settlements and the predicted birch habitats, we have also compiled a comprehensive review of palaeoenvironmental records, including archaeobotanical evidence of birch use in Western Europe, such as fuelwood, tar production, and pollen assemblages. Our results aim to improve our understanding of the biogeography of silver birch over time, and how environmental changes may have impacted resource availability and human behaviour. Furthermore, the ECOHUB project aims to establish a robust methodological framework for future ENM applications in archaeobotany, palaeoenvironmental research, and landscape archaeology.

**1179. MODELING PAST BLUE ECONOMIES: AN APPROACH FOR UNDERSTANDING THE RESILIENCE OF COASTAL SOCIOECOLOGICAL SYSTEMS**

**Contribution format:** Oral  
**Contribution authors:** Maria Coto-Sarmiento – Débora Zurro (IMF-CSIC - Consejo Superior de Investigaciones Científicas) – Antonio Canepa-Oneto (University of Burgos) – Lucia López-López (Centro Oceanográfico de Santander (COST-IEO, CSIC)) – Nesly Melissa Bello (IMF-CSIC - Consejo Superior de Investigaciones Científicas) – Virginia Ahedo – José Manuel Galán (University of Burgos)

Coastal economies have historically adapted to specific challenges and have traditionally been viewed as more resilient compared to their inland counterparts. This perception stems from advantages such as their diversified economies and also the higher carrying capacity of coastal ecosystems. Although the archaeological record in coastal environments demonstrates fluctuations in captured species as well as species depletion (diminution of prey sizes), the richness of marine resources is sometimes thought to be endlessly renewable. We outline the

objectives of the project bluePALEOeconomy: analysis of coastal socioecological systems in the long-term through data science. The project will explore blue economies by addressing different aspects including the anthropological impact on marine resources. We aim to identify patterns of anthropogenic impact and resilience in marine ecosystems by integrating environmental and social dimensions. We will assess marine resource consumption and possible resource depletion in coastal socioecological systems through modeling (ABM). Consumption of resources from both benthic and pelagic contexts will be modeled and analyzed, and results will be reviewed in light of existing archaeological data. Additionally, the project will examine gender roles in the production and processing of marine products in blue economies. This objective will be addressed through cross-cultural analysis and data mining of ethnographic and archaeological data that will be confronted to illustrate how advanced technological skills complement traditional methodologies. Computational models in combination with archaeological data will contribute to a broader understanding of the human impact in marine environments, providing insights for both human ecology and the reconstruction of past economies.

**152. HUMAN IMPACT ON ARID/SEMI-ARID ENVIRONMENTS: UNDERSTANDING MIXED URBANIZATION IN THE WATER SYSTEM OF THE MURGHAB RIVER (SOUTHERN TURKMENISTAN)**

**Contribution format:** Oral  
**Contribution authors:** Barbara Cerasetti (FU Berlin | ISMEO Rome)

Since ancient times, Central Asia has been affected by profound climate changes. The consequent radical transformations of the territory by human beings to survive have strongly endangered the delicate ecosystem of these geographical areas, often with catastrophic effects. During the 3rd - 2nd millennium BCE, urbanization extensively modified and deeply influenced the local environment of vast water systems. A specific aspect of this phenomenon deserves to be taken into consideration, i.e., the resulting settlement pattern after the “distribution” of territories between Greater Khorasan Civilization and Andronovo-related populations in the alluvial fan of the Murghab River (southern Turkmenistan). In particular, how the spatial interaction (intra/off-site) between these two cultures has been deeply influenced by the difficult adaptation of the techniques, known at that time, to the exploitation of water and primary resources. The investigation of the multicultural and multifunctional system of Togolok, and the excavation of a long-lived site such as Togolok 1, within the surrounding environment and the ancient water system, could give decisive answers to some of the numerous and unresolved questions that still characterize the Margiana of the Bronze Age.

**370. THE ROLE OF THE ENVIRONMENT IN CHANGING HUMAN DIETS: NEW INSIGHTS FROM ZOOARCHAEOLOGICAL ANALYSES IN HOLOCENE EASTERN AUSTRALIA**

**Contribution format:** Oral  
**Contribution authors:** Loukas Koungoulos – Jane Balme (University of Western Australia) – Sue O’Connor (Australian National University)

The Holocene in Australia has been characterized as a period of dramatic cultural transformation, the impacts of which are widely reflected in the continent's archaeological record. Amongst models aiming to explain these changes, environmental and ecological factors are commonly invoked as causative factors in triggering the transformation of Australian Aboriginal social, technological, and economic organisation. However, these factors are often only vaguely or broadly applied, and though plausible, possible agents of change such as fluctuating temperature and rainfall mostly remain uncritically linked to changes in human culture. To more directly consider whether human diets during the Holocene were influenced by changing environments or ecologies, we present the results of our original zooarchaeological analysis of three key archaeological rockshelter sites in eastern Australia - Curracurrang, Graman, and Gatton - which are representative of regional changes in human diets over the last 6500 years. We examine the evidence for changing environmental conditions and consider how these may have influenced the human communities of each region. In turn, we assess how closely observed changes in the animal diet of people at each site resemble predictions made from models of environmental change based on other palaeoenvironmental data. We find that dietary change is highly regionally structured, rather than broadly continental. Developments in coastal environments occur along a totally different trajectory to inland ones, with further differences observed between inland settings situated in different biomes. Moreover, evidence for causes of change is generally equivocal, with no one outstanding factor responsible in a given context. Our results attest to the complexity of Holocene cultural developments in Australia and their relationship to environmental conditions, and prompt reconsideration of the evidence base for larger synthetic models of subsistence change occurring on a continental basis.

**2444. AT THE EDGE OF CHANGE: ENVIRONMENTAL GRADIENTS AND SOCIAL COMPLEXITY IN AN URNFIELD CULTURE CEMETERY AT THE MAIN-SPESSART INTERFACE**

**Contribution format:** Oral  
**Contribution authors:** Chiara Girotto (LMU Munich)



Every complex system is directly influenced by its environment, with humanity often considered the prime example of a complex adaptive system. Living continuously on the edge, human societies manage resource systems, generate ecological niches, and adapt their technological complexity to meet environmental challenges. Human-environment interactions are therefore a pivotal aspect of social change – especially in transitory, nodal spaces where environmental gradients can create and highlight aspects that might be easily overlooked elsewhere. This paper explores the relationship between environmental conditions and social complexity through a detailed archaeological and osteological study of an Urnfield Culture cemetery in Lower Franconia (Bavaria and Hesse, Germany). The region is unique, as it not only documents shifting preferences in material culture and burial customs but represents the meeting point of the larger Eastern and Western Urnfield Culture horizons. Even on a more local scale, the chosen site sits at the intersection of several regionalized material technocomplexes and highlights the shifting burial customs of the period. The site is positioned at the convergence of three distinct ecological zones: the agriculturally unsuitable Spessart woodlands, the extensive water networks of the lower Main region, and tracts of highly fertile soils. This unique geographical positioning allows us to examine how communities leveraged diverse resource zones and how differential access to resources potentially catalyzed social stratification. The paper presents a preliminary analysis combining comprehensive environmental modeling with regional analysis of spatial and material culture patterns. By integrating these with archaeological and osteological studies of individuals who occupied this space, we deepen our understanding of how environmental factors can shape and accelerate social differentiation in prehistoric societies, particularly at zones of ecological transition.

**1613. LATE IRON AGE COMMUNITIES IN CENTRAL DOBRUJA (ROMANIA): BIOARCHEOLOGICAL INDICATORS FOR HUMAN–ENVIRONMENTAL INTERACTIONS IN THE HELLENISTIC SETTLEMENTS OF MEDGIDIA**

**Contribution format:** Oral  
**Contribution authors:** Eliza Cretu – Margareta Stanc – Mihaela Danu (“Alexandru Ioan Cuza” University of Iași, Faculty of Biology) – Petre Colțeanu (The National Museum of History and Archaeology Constanța) – Paul Donciu – Eduard Cornia – Luminița Bejenaru (“Alexandru Ioan Cuza” University of Iași, Faculty of Biology)

The Late Iron Age settlements studied in this work, named Medgidia Hellenistic 1, 2 and 3, date to the 4th-3rd centuries BC, a span time known as the Hellenistic period for the Dobrujan area. These sites, located in Medgidia (Constanta County, Romania), were excavated during 2022-2024 resulting over 600 archaeological contexts, such as domestic or supply pits, ceramic kilns, dwellings or various types of facilities. The research area is located on the edge of an ancient commercial road, halfway between the shore of the Black Sea (area under the influence of West-Pontic Greek colonies) and the Danube River, at the western end of the Karasu Valley, a navigable channel in antiquity. It is worth mentioning the attestation, for the first time, starting with the 4th century BC, of the presence of a North Pontic (Scythian) population in the central Dobruja area. Phytolith analysis provided valuable insights into local plant use and vegetation dynamics, contributing to the reconstruction of agricultural practices, dietary habits, and environmental management strategies. Archaeozoological analysis is focused on anatomical and taxonomic identifications, age and sex estimations, osteometry, taphonomic evaluation. The faunal samples consists of skeletal remains, almost all attributed to mammals and few to fish. Domestic mammals dominate, and the most prevalent species are cattle, sheep/goat, and horse. Additional remains included dog and pig. Identified wild mammals are hare and red deer. Archaeozoological analysis attests that animal husbandry was very important to the local economy. The mixed exploitation strategy applied to cattle and sheep/goat targeted to obtain meat, milk, and wool, as it is revealed by the analysis of animal selection at slaughter by age and sex.

**1119. LATEST NEOLITHIC IN THE EBRO VALLEY (NORTHEASTERN SPAIN): STATE OF THE ART AND NEW PALAEOENVIRONMENTAL DATA FROM LOS PIOJOS CAVE**

**Contribution format:** Oral  
**Contribution authors:** Carmen Núñez (Departamento de Geología, Universidad del País Vasco/Euskal Herriko Unibertsitatea | Aragosaurus: Recursos Geologicos y Paleoambientes – IUCA, Universidad de Zaragoza) – Julia Galán (Senckenberg Forschungsinstitut und Naturmuseum) – Ximena Pérez-Escamilla (Aragosaurus: Recursos Geologicos y Paleoambientes – IUCA, Universidad de Zaragoza) – Sandra Bañuls-Cardona (Departamento de Prehistoria, Arqueología e Historia Antigua. PREMEDOC. Universidad de Valencia) – Vanessa Villalba-Mouco (Institute of Evolutionary Biology, CSIC-Universitat Pompeu Fabra) – Rafael Laborda-Lorente (Centro de Espeleología de Aragón (C.E.A))

The Neolithic site of Los Piojos is a small cave located in Ricla (Zaragoza, Spain), on the southern flank of the Ebro River, northeast of the Iberian Peninsula. Its sedimentary infill (85 cm depth) is divided in three levels, with an

age of 5084-4903 cal. BP (ending Northgrippian) for the intermediate one. The site has provided interesting archaeological record, remarkably human remains and tools that evidence the sepulchral use of the cave from the late Neolithic. The use of the caves as burial sites is usual in the late Neolithic of the northeastern Iberian Peninsula. This moment is of particular importance due to the cultural and social changes related to the climatic fluctuations of the Holocene, specifically the 4.2 ky event, and the previous Northgrippian Neoglaciation. In this context, the Ebro Valley provides an interesting source of palaeoenvironmental information thanks to the numerous archaeological sites and to its geographic particularities, as it is influenced by both Atlantic and Mediterranean climates. Despite these facts, no deep analysis of the small vertebrate communities of the archaeological sites in the area have been performed yet. Here we present the first data of the small vertebrates of Los Piojos, revealing an assemblage interestingly dominated by open humid habitats and woodland preferences, which contrasts with the general aridity described for this moment. These results highlight the need of more multi-proxy climatic analysis in the area, a project in which this team is currently involved.

**2114. BRONZE AGE HUMAN OCCUPATION AND ENVIRONMENTAL RECONSTRUCTION OF COVA DES RIUETS (FORMENTERA, BALEARIC ISLANDS)**

**Contribution format:** Oral  
**Contribution authors:** Sandra Cardona (university of valencia | Iphes-Cerca | urv) – Damià Ramis (Societat d’Història Natural de les Balears (SHNB)) – Josep López Garí – Ricard Marlasca Martín (Posidonia S.L.)

Studies on the earliest human occupations in the Balearic Islands are of great interest since the available data are scarce. This is what makes the study of Cova des Riuets significant, with an occupation during the Bronze Age (2109-1774 cal BC). The diversity of micromammals is low (three species of bats and three of rodents). Among them, *Apodemus sylvaticus* is the most abundant (67.3%). Additionally, one of the most significant discoveries of this study is the identification of *Mus spretus* (18.4%), representing the first recorded occurrence of this rodent in Formentera. The paleoenvironmental analysis suggests a landscape dominated by extensive wooded areas (Wo 87%). From a climatic perspective, the data suggest a typically Mediterranean environment, associated with *Mus spretus* and *Miniopterus schreibersii*, while species such as *Rhinolophus ferrumequinum* an. *Rhinolophus euryale*. show Eurosiberian preferences with some tolerance to Mediterranean climates. However, the predominance of *Apodemus sylvaticus*, a generalist species, points to a Mediterranean ecosystem in which different ecological niches coexisted in balance. To analyze the type of occupation, we applied the mesowear technique on *A. sylvaticus*. We used this species because it is a generalist that adjusts its diet according to seasonal food availability. Statistical results indicate that the accumulation of micromammals in the cavity always occurs during the same climatic period, specifically suggesting a temperate climate, as we recorded low wear. These conditions favored a greater variety of foods, which are known to cause lower dental abrasion. Additionally, the homogeneous size of the teeth indicates that the cave was vacated during very short periods. It is likely that the inhabitants of this cave took advantage of these moments to move their herds to other grazing areas, temporarily abandoning the cave and allowing birds of prey to use it as a hunting site.

**1142. WHAT CAN FOSSIL BATS REVEAL ABOUT ANCIENT HUMAN POPULATIONS AND THEIR LIVING ENVIRONMENTS?**

**Contribution format:** Oral  
**Contribution authors:** Julia Galán García (Senckenberg Forschungsinstitut und Naturmuseum, Abteilung Messelforschung und Mammalogie)

Small vertebrates like mammals, reptiles, and birds are widely studied in archaeozoology for their insights into past environments and climate. Yet, bats (Chiroptera) are often overlooked, despite comprising over 30% of European mammalian diversity today and being a key component of cave faunas. This work reviews research on Quaternary fossil bats and their potential as proxies in archaeological contexts, focusing on case studies from the Sierra de Atapuerca complex (Burgos, Spain) that I have developed over the last ten years. Fossil bats provide valuable palaeoenvironmental and palaeoclimatic data, as seen in the Lower Pleistocene sequence of Sima del Elefante and the Lower-Middle Pleistocene sequence of Gran Dolina. Notably, they reflect habitat composition on a broader spatial scale than most non-flying vertebrates. Fossil bat assemblages can also provide insights into cave use by both bats and humans. Since certain bat colonies and human occupations were often incompatible, the demographic composition of the taphocenosis in colonial species can reveal seasonal cave use: nursery colonies form in warmer months, while hibernation colonies appear in colder periods. At Gran Dolina, a significant decline in bat populations in the Middle Pleistocene layers coincides with *Myotis myotis* ceasing to use shelters as nursery roosts. Moreover, fossil bats can offer insight into large-scale ecosystem shifts. The study of *Myotis blythii* in Western Europe—the earliest clear evidence of its presence in the area being reported at El Mirador, in Sierra de Atapuerca—suggests that the species expanded westward at the beginning of the Holocene. This raises the question of whether its expansion was linked to a parallel expansion of open landscapes. These



findings highlight the need to better integrate bats into archaeozoological research to deepen our understanding of human-animal-environment interactions throughout history.

1041. SMALL MAMMALS AS PALEOCLIMATIC AND PALAEOECOLOGICAL PROXIES

**Contribution format:** Oral  
**Contribution authors:** Ivan Rey-Rodriguez (Centro de Investigación Mariña, Universidade de Vigo, MAPAS Lab. | Centro de Investigação em Ciências Geo-Espaciais, Faculty of Sciences,University of Porto) – Graciela Sotelo – Adriana Oliver – Adrián Castro-Insua – Sofía Galván – Sara Gamboa – Marta Matamala-Pagès – Eduardo Méndez-Quintás (Centro de Investigación Mariña, Universidade de Vigo, MAPAS Lab.) – Neftalí Sillero (Centro de Investigação em Ciências Geo-Espaciais, Faculty of Sciences,University of Porto) – Sara Varela (Centro de Investigación Mariña, Universidade de Vigo, MAPAS Lab.)

Small mammals are powerful palaeoecological indicators in archaeological sites, providing key insights into past environmental conditions and climatic changes that influenced human societies. Their climatic specialization—ranging from generalists inhabiting multiple climatic zones to specialists restricted to specific ones—makes them valuable proxies for reconstructing ancient landscapes and refining site chronologies. Using a dataset of 4.231 species (Chiroptera, Eulipotyphla, Lagomorpha, and Rodentia), and integrating climatic zone classifications and phylogenetic data, we analyze global patterns of climatic zone specialization among extant small mammals and the relationship between specialization and species-specific diversification rates. Our results reveal that 39% of small mammals are climatic specialists, with the highest proportions found in tropical and arid zones and a marked decline in colder environments, and that specialists tend to show higher diversification rates. This comprehensive approach allows us to evaluate the utility of small mammals in palaeoclimatic and palaeoenvironmental reconstructions, offering new perspectives on human-environment interactions. Our findings suggest that rodent climatic zone specialists, rather than all small mammals, provide the most reliable proxies for past climates. This study reinforces the significance of small mammals in archaeological contexts, contributing to broader discussions on resilience, adaptation, and environmental change in past human societies.

1595. ANIMAL EXPLOITATION IN THE LATE BRONZE AGE SETTLEMENT OF RECEA MARE “VALEA SULDUBA” (SĂLAJ COUNTY, ROMANIA)

**Contribution format:** Poster  
**Contribution authors:** Eliza Cretu (“Alexandru Ioan Cuza” University of Iași, Faculty of Biology) – Ioan Bejinariu (Zalău County Museum of History and Art) – Luminița Bejenaru – Simina Stanc (“Alexandru Ioan Cuza” University of Iași, Faculty of Biology)

The settlement, archaeozoologically analyzed here, is located west of the Meseș Mountains, on the high terrace of a Crasna river tributary. The settlement belongs to the Cehăluț-Hajdúbagos cultural group from the Transylvanian Late Bronze Age. So far it is the only settlement of this period in Transylvania that has been archaeologically fully researched (in 2008). The settlement has a compact structure, with eight buildings and numerous pits with various purposes, as well as external fire installations, all on a small area of about 0.35 ha. Two radiocarbon datings, obtained from animal bones, suggest an evolution of the settlement during the first two stages of the Transylvanian Late Bronze. The archaeozoological study aimed at assessing the animal resources and their exploitation strategies through methods such as anatomical and taxonomic identifications, osteometry, age and sex estimations, and taphonomic evaluation. The analyzed sample consists of 338 remains, all attributed to mammals. Domestic mammals predominate (88.3% of the remains), and the identified species are: cattle, sheep/goat, pig, horse, and dog. Wild mammals (11.7%) include red deer, wild boar, hare, roe deer, and wolf. Among the domestic mammals, the most representative species are cattle (40%; generally slaughtered at over 2 years of age), followed by pig (23.02%; mainly slaughtered at 24-26 months and 9-12 months), and sheep/goat (22.26%; slaughtered mainly over 18 months). Taphonomic analysis revealed 116 faunal remains with different marks: 42% of butchering, 27. of gnawing, 27.6% of burning, and 2.6% of processing. The archaeozoological results suggest that the economy of the Recea community was centered on animal husbandry (cattle, pig, and sheep/goat), with hunting serving as a secondary resource to supplement the intake of animal protein.

39 HEARTHES, OVENS AND COOKING SPACES IN THE MEDITERRANEAN FROM THE LATE PREHISTORY TO THE MIDDLE AGES

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** combustion structures, fire, households, domestic spaces, pyroarchaeology,  
**Session organisers:** Maria Carme Belarte (Institut Català d’Arqueologia Clàssica | Institució Catalana de Recerca i Estudis Avançats) – Marta Mateu Sagués (Institut Català d’Arqueologia Clàssica) – Miquel Molist (Universitat Autònoma de Barcelona) – Elisabetta Borgna (Dipartimento di Studi Umanistici e del Patrimonio Culturale, Università di Udine) – Joaquim Sisa-López De Pablo (Universitat Autònoma de Barcelona)

SESSION ABSTRACT

Combustion structures (hearths and ovens) are key features in the domestic spaces of past societies. They are linked to basic daily activities, especially cooking, lighting, or space heating, and their presence largely determines the organisation of daily life. The location of hearths and ovens (inside or outside the house), their different functions and purposes, their relationship with objects and other structures, or their private or public character are matters to be considered in studying households and domestic spaces. Recently, the application of different analytical techniques has made it possible to investigate various issues related to these structures in greater depth, such as construction techniques and materials, fuels and possible associated activities. Without excluding this type of approach, we intend to delve into social or anthropological aspects related to the use of hearths and ovens by comparing them with current or recent societies. Therefore, methodologies such as ethnoarchaeology or historical and documentary studies are welcome, as they provide valuable information on aspects that we cannot always detect archaeologically (use of certain utensils and objects related to cooking, private or collective use of the structures, especially in the case of ovens, etc.). The aim of this session is thus to approach the study of domestic fire installations from different perspectives, focusing particularly on the use of the structures in different geographical areas and over a long period of time.

CONTRIBUTION ABSTRACTS

643. FIRESIDE CHATS: INVESTIGATING FIRE-INSTALLATIONS IN EARLY SEDENTARY FARMING COMMUNITIES AT THE PRE-POTTERY NEOLITHIC SITE OF TELL HALULA (SYRIA)

**Contribution format:** Oral  
**Contribution authors:** Joaquim Sisa-López De Pablo – Anna Bach-Gómez – Adrián Segarra – Miquel Molist (Universitat Autònoma de Barcelona)

Fire installations are key in archaeology for understanding the organization of social spaces in past societies, as they provide valuable insights into domestic activities, production and consumption practices, and the creation of spaces of belonging. During the transition from mobile hunting-gathering to sedentary agricultural strategies, concepts of space changed, with buildings shifting to rectilinear, multi-roomed structures. In this context, hearths and ovens were less frequently placed in communal areas and were instead incorporated within individual architectural units. This change suggests that fire-related activities became more segregated within distinct social units, which, along with other socioeconomic transformations, emphasized the household as a central unit of production and consumption. This presentation aims to explore the technology and interrelations between fire use, social roles, and cultural practices through the analysis of archival excavation data reporting on three distinct morphological types of combustion structures (oven, hearth and excavated fire installation) identified within domestic spaces at the Pre-Pottery Neolithic site of Tell Halula. The construction, location, and use of these fire installations will be examined to investigate the social dynamics of sedentary early agricultural communities.

103. THE STANDARD, THE STRANGE AND THE BEAUTIFUL: CHALCOLITHIC OVENS FROM TELL YUNATSITE, SOUTH BULGARIA

**Contribution format:** Oral  
**Contribution authors:** Kamen Boyadzhiev (National Archaeological Institute with Museu. at the Bulgarian Academy of Sciences)

Tell Yunatsite is one of the largest tell-sites in South Bulgaria. The Chalcolithic layer (according to Bulgarian periodization) spans over most of the 5th millennium BC. The latest Chalcolithic settlement (BI) was excavated over 1/3rd of the tell surface in the 1990s. Recent excavations have concentrated on a smaller area and remains of five building levels have been studied. More than 20 combustion structures were revealed. A high degree of standardization is attested in levels BII – BVI in terms of their construction and dimensions, while some differences are



visible in level BI. Focus of the presentation is on two structures that stand out of this picture. One of them is a partially preserved oven from level BV with structure and shape similar to the standard ones. However, its eastern wall is covered with in incised ornament: an angular meander with two rhombuses in the center. The motif is often found on pottery vessels, especially storage ones, and is also attested on clay models of ovens. However, the representation on a real oven is unique for the Chalcolithic in the area. The second structure is completely different: an oval shallow pit with specific “channels” on both sides, filled with charcoals and ash. Both field observations and ethnographic parallels suggest its use for cooking. The analyses of the ovens at tell Yunatsite show long-lasting tradition and standardization in their construction, probably related to efficient parameters. At the same time, the two outliers provide grounds to speculate over both specific cooking practices, and another aspect of combustion structures: their association with the “symbolic realm” and possible use in domestic rituals.

**1155. SWEATING THE DETAILS: DIGITAL DOCUMENTATION AND RECONSTRUCTION OF COMBUSTION FEATURES FROM 2ND MILLENNIUM BCE KAYMAKÇI, WESTERN ANATOLIA**

**Contribution format:** Oral  
**Contribution authors:** Catherine Scott (Research Center for Anatolian Civilizations, Koç University) – Christina Luke (Koç University)

Combustion features play an important role in many human behaviors, from domestic practices like cooking to social and religious rituals. However, the ubiquity and (supposedly) obvious role of many of these features can lead us to take them for granted or to make assumptions about their function and meaning in the ancient past. This is particularly true of Bronze Age western Anatolia, where these features are often understudied and even the definition of a feature as a hearth, oven, or kiln can be inconsistent. One way to move forward in our understanding of combustion features is to invest in more detailed documentation of these features, which allows us to engage with their complexity through ethnographic comparison, experimental archaeology, and other approaches. Here, we discuss how the use of an innovative born-digital recording system has facilitated the documentation, analysis, and reconstruction of combustion features at the 2nd millennium BCE citadel of Kaymakçı. A technological innovation of this recording system is the use of structure-from-motion (SfM) photogrammetry to record each context and to create fully 3D “context volumes,” digital surrogates of excavated contexts. This system further incentivizes us to approach features as a collection of individual components (contexts) rather than as a single unit. The result is a wealth of digital data and other material that can be used to understand the history and use of important features, including those that may not have been recognized during initial excavation. To demonstrate the value of this approach, we discuss the case of the first combustion feature excavated at Kaymakçı. Though our initial understanding of this feature was poor, subsequent analysis using digital data and comparison to other examples from the past and the present has allowed us to reconstruct a complex construction history that points to the social significance of this otherwise-mundane feature.

**1483. FIRE INSTALLATIONS AND SOCIAL DYNAMICS IN MIDDLE AND EARLY LATE BRONZE AGE GREECE: THE CASE OF TRAPEZA (EASTERN ACHAEA)**

**Contribution format:** Oral  
**Contribution authors:** Assunta Mercogliano – Elisabetta Borgna (University of Udine)

This paper investigates the social and economic significance of fire installations and cooking facilities in domestic contexts of Middle and early Late Helladic (2100-1600 BCE) settlements in Greece, focusing on the Trapeza village (Eastern Achaea), where the presence of multiple fire installations—including both simple and built hearths as well as an oven—within a multi-phased building sequence, suggests a pattern of food processing and consumption deeply embedded in communal life. The redundancy of fire installations, documented in well-known Helladic settlements such as Lerna, Asine and Eutresis, often accompanied by evidence of small-scale household storage, reflects a broad ideology centred on the transformation of staple goods and the preparation of foods. These facilities likely functioned not only for subsistence on the household level but also favoured social participation in practices such as hospitality and communal consumption, thus playing a crucial role in structuring economic practices and reinforcing social bonds. The evidence from the Trapeza settlement supports the idea that domestic installations held symbolic meaning, serving to maintain community cohesion while also mediating social and economic relationships. By comparing these features with similar installations in contemporary settlements, this paper contributes to a broader discussion on the role of subsistence economies in shaping the social organization of Middle Helladic and early Late Helladic communities.

**1205. DWELLING AROUND THE FIRE IN MBA/EARLY LBA SARDINIA: THE CASE OF GRUTT’I ACQUA/ SANT’ANTIOCO**

**Contribution format:** Oral  
**Contribution authors:** Marie Usadel – Constance Von Rüden – Alexander Klein (Ruhr University Bochum)

Radiating heat, spreading light and disseminating smell hearths can be surely considered as a sensual focus of a household or an even larger community. While there is substantial evidence for hearths and ovens in Sardinia during the Late and Final Bronze Age, findings from the Middle Bronze Age corresponding to the crucial formation phase of the so-called Nuragic material culture are comparatively limited. Recent excavations on the islet of Sant’Antioco have yielded centrally located hearths in the elongated and relatively large ‘capanne’ of this phase. Their material relation to other installations such as benches or grinding zones show that this domestic assemblage clearly differs in their internal organization from the later examples suggesting a distinct daily routines. Furthermore, hearths and fireplaces are not exclusively found in converted spaces; they also serve as a focal point in prominent areas primarily characterized by the presence of natural rocks and boulders. The objective of this study is to provide a comparative analysis of the hearths found in various archaeological contexts. It seeks to elucidate the extent to which these hearths functioned as sensual focal points and communal gathering spaces in these early-stage communities and to analyse their potential role as catalysts for community-building processes.

**543. FIRE INSTALLATIONS AND COMMUNAL ACTIVITIES IN BRONZE AGE LAGOON SETTLEMENTS: TWO CASES FROM THE ADRIATIC SHORES**

**Contribution format:** Oral  
**Contribution authors:** Elisabetta Borgna (University of Udine) – Giulia Recchia – Alberto Cazzella (University of Rome “La Sapienza”) – Susi Corazza – Assunta Mercogliano (University of Udine)

In this paper we intend to address the analysis of functional areas provided with fire installations in Bronze Age settlements by adopting a diachronic perspective and a comparative approach. The study is based on some relevant contexts from two coeval long-term sites of Bronze Age Italy, well comparable for their environmental layout as well as for their strategic position in the maritime connectivity of MBA / LBA Adriatic. The start of a joint project shared by the Universities of Udine and Roma La Sapienza, focusing on sustainability of life in the lagoonal environments of the Adriatic shores, provides the opportunity to implement with additional data the research on the sites of Ca’ Baredi/Canale Anfora in northern Adriatic and Coppa Nevigata in the Tavoliere region, SE Italy, well-known in the international archaeological literature. In both settlements many fire installations including several types of hearths and ovens - which have been already commented on in some devoted publications- are mainly concentrated in specific communal areas where various subsistence practices were carried out. Transformations in size, volume, building and firing technique of the installations and variability of material culture over time suggest that the role played by these areas shifted from food processing collectively performed by various domestic units to resource exploitation in the framework of symbolic and/or specialized activities carried out on a public scale. On the present occasion we intend to explore the social dimension of this transformation. Diagnostic markers of different activities within the spatial and material layouts will be singled out. The symbolic significance of social practices indicated by definite structured deposits related to food preparation and consumption will be analysed in detail.

**815. FROM COOKING TO SOCIAL FUNCTIONS. STUDYING COMBUSTION STRUCTURES IN IRON AGE WESTERN MEDITERRANEAN WITH ETHNOARCHAEOLOGY AND EXPERIMENTATION**

**Contribution format:** Oral  
**Contribution authors:** Maria Carme Belarte (Institut Català d’Arqueologia Clàssica | Institució Catalana de Recerca i Estudis Avançats) – Maria Anguera – Marta Mateu (Institut Català d’Arqueologia Clàssica) – María Pastor Quiles (Universitat d’Alacant)

Combustion structures documented in protohistoric settlements are considered to be defining elements of domestic spaces. In the case of the Mediterranean coast of the Iberian Peninsula during the Iron Age, most of the spaces with a hearth are attributed with culinary functions. The presence of more than one hearth in some cases may indicate that these were multifunctional spaces, where one of the hearths would have been used for cooking, and other(s) could be used for lighting or heating, or even for craft activities. The coexistence of hearths of different morphology seems to confirm this hypothesis. Other usual combustion structures in Iron Age settlements are ovens, related to bread making. Although they can be located inside the houses, they are often in open spaces or in buildings with differentiating features. This suggests a possible collective use for them. The observation of ethnographic cases can provide useful data for interpreting the functions and forms of use of these structures. In our case, we have carried out an ethnoarchaeological study of the uses of traditional ovens in the Rif region of Morocco, that (from a morphological perspective) are similar to protohistoric structures in Iberia. We have recorded the uses and functions of the ovens, where the role of women in the construction, use and maintenance of these structures stands out, as well as the function of these combustion features as points of collective meeting. This research has been completed with experimental work, in which the shape of the ovens in the Rif area has been replicated, as well as the specific way of bread preparation, filling the oven with fuel, and bread baking. Using these approaches to the study of fire installations we intend to gain a broader and more complete perspective for the study of their use in the past.



778. CLAY AND FIRE: UNVEILING DOMESTIC SPACES, HEARTHES, AND OVENS IN THE IRON AGE SETTLEMENT OF NADIN-GRADINA, NORTHERN DALMATIA (CROATIA)

**Contribution format:** Oral  
**Contribution authors:** Martina Celhar (Department of Archaeology, University of Zadar) – Gregory Zaro (Anthropology Department, University of Maine | Climate Change Institute, University of Maine)

Nadin-Gradina is located centrally in Ravni Kotari (Northern Dalmatia, Croatia) and was one of the largest and most distinctive hillforts during the Iron Age, having also undergone significant transformation into a Roman municipium (Nedinum) by the first century CE. The investigation confirmed a continuous occupational history that spanned more than 1,500 years, from the late 11th or 10th century BCE until the end of 6th century CE. Despite complicated depositional sequences, Iron Age architecture is remarkably well preserved. One of the most significant discoveries to come from this work is the preservation of deeply buried Iron Age domestic architecture with numerous documented cooking spaces that included hearths and ovens. From about the 9th to the 2nd centuries BCE, these domestic complexes are characterized by relatively large architectural units defined by compacted clay surfaces and (eventually) dry stone alignments. Our excavation exposed two of these structures, separated from each other by a narrow north/south passage and flanked to their south by a wider east/west street. Although these individual structures clearly underwent multiple renovations over the course of centuries, they did so while utilizing their same locations, dimensions, and similar patterns of internal spatial organization throughout much of the Iron Age. The northern parts of the structures were regularly reserved for storage purposes, whereas the southern parts were designed for more active domestic activities, including kitchen areas and other living spaces. This presentation addresses the physical manifestation and location of hearths and ovens, the continuity of organization of domestic (and cooking) areas through time, and their relationship with objects and other structures during the Iron Age. It also introduces such features documented for the subsequent Roman period at the Nadin-Gradina site.

321. CONTEXTUAL ANALOGIES: INTERPRETING FIRE INSTALLATIONS OF EARLY ISLAMIC PALESTINE (7TH-11TH CENTURY CE)

**Contribution format:** Oral  
**Contribution authors:** Hagit Nol (Goethe University Frankfurt)

Archaeologists employ analogies for the interpretation of objects and features. They compare the archaeological finds with the material culture of modern societies, often pre-industrial ones (ethno-archaeology), and with information found in texts or art. Such analogies have been criticized in the past as too simplistic. This paper offers one method of analogy which might overcome the critique by using the Big Data approach: multiple sources are analyzed within their own contexts and through various sets of research questions, and the results and interpretations of these analyses are then contrasted. The case study to demonstrate the method is fire installations. First, features dated to early Islam (7th to 11th century) in archaeological sites of one region in central Israel are analyzed through spatial methods. The research focuses on adjacent artefacts, raw materials or installations which imply the function of these installations. Second, ovens, hearths and furnaces are searched in the written sources of that period, reflecting their functions as well as their name and possible form. Third, the use of fire in modern societies in the Middle East is observed, with a special attention to the remains it might leave for future archaeologists. Comparing the results of the three corpuses suggests a new interpretation for domestic baking and cooking in archaeology – in the research area and probably beyond.

1716. ON THE USE OF THE TONIR AT THE ARUCH SITE (REPUBLIC OF ARMENIA): AN ETHNO-ARCHAEOLOGICAL ANALYSIS

**Contribution format:** Oral  
**Contribution authors:** Elena Fausti (Università Sapienza di Roma) – Francesca Galanti (Università degli studi Roma Tre) – Sergio Ferdinandi (ISMEO)

The medieval site of Aruch represents an exceptional context for the study of traditional Armenian ovens, called tonir, attested in large quantities and of different types. The unpublished results of this recent excavation conducted by the ISMEO - International Association for Mediterranean Studies in collaboration with the IAE NAS RA - Institute of Archaeology and Ethnography of the National Academy of Sciences of the Republic of Armenia have made it possible to investigate various aspects related to these structures, such as the construction methods and materials used, but also the types of domestic activities associated with them. The study of tonirs was complemented by delving into the social and anthropological aspects related to the use of these ovens in contemporary Armenian communities. Direct interaction with the local community provided valuable information on aspects that cannot always be detected archaeologically, such as traditions related to food preparation and the role of these ovens

as a focus of social interaction, both in private and collective contexts. This multidisciplinary approach makes it possible to link archaeological evidence with current practices, offering a deeper understanding of cultural continuity and transformations over time. The study of the Aruch tonirs not only illuminates aspects of medieval daily life, but also contributes to the enhancement of Armenia’s cultural heritage and the preservation of centuries-old traditions.

1608. A SOCIO-ECOLOGICAL INTERPRETATION SYNTHESIS THROUGH COMBUSTION STRUCTURES FROM BRONZE AGE TO MIDDLE AGES IN SOUTHEASTERN IBERIAN PENINSULA

**Contribution format:** Oral  
**Contribution authors:** Mireia Celma Martínez (University of Murcia)

In social and gender archaeology, domestic combustion structures are one of the most valuable assets for understanding the maintenance tasks carried out in each of the domestic units. The singularity or uniformity of their construction, the place they occupy within the household, their maintenance over time, and the woofuel found are some of the variables to be taken into account when analysing these social spaces. The complete recovery of bioarchaeological remains in the interior and the proximity and immediacy of these specialised structures allows us to delve deeper into the human agency. For this reason, the methodology during fieldwork is key, as well as the processes of analysis of samples and subsamples in the laboratory. The decision-making chain from discovery to data processing will be briefly discussed, as this is crucial to guarantee a faithful approximation of past life forms, which can be compared on a large territorial scale, both synchronic and diachronic. A synthesis of all the available results of combustion structures analysed (use, form, space, woodfuel) is presented in order to establish changes and affinities in the diachrony presented by this territory from a critical point of view and with the aim of providing a summary of results that can be compared with other sites within the established chronological framework. Anthracology provides a unique opportunity to compare the uses of these structures and the feeding needs of the hearths, which have more or less intensive maintenance implications in the search for woodfuel. For all this, the most salient cases are presented in depth as a sample of the exploratory possibilities and to support the research hypotheses.

2149. ANALYTICAL AND EXPERIMENTAL STUDY OF THE NEOLITHIC HEATED STONES FIRE STRUCTURES OF THE LOUVIERS SITE EURE FRANCE

**Contribution format:** Poster  
**Contribution authors:** Ramiro March – Cecilia de March (Umr Creaah 6566 CNRS) – Vincent Dartois (MADE Eure et loire France) – Loic Gaudin – David Aoustin (Umr Creaah 6566 CNRS) – Quentin Broderie (MADE Eure et loire France)

The heating structures of North-West France have very special characteristics in relation to the use of these stone materials and have often created difficulties in defining their functions. This poster will present a recent analytical and experimental exploration study carried out on two combustion structures from the ancient and middle Neolithic Louviers site (Eure- France), based on an analytical and experimental approach of the different types of proxies (anthracological, mineralogical palynological, sedimentary and biogeochemical isotopic lipids data and physicochemical analyses) carried out to understand the modes of functioning and the possible functions of this kind of estimate as theoretical domestic cooking structure. following the approaches practiced from preventive archaeology. The objective is to present our results , questions and innovant methodological approaches to answer the different question related to the use and functions of this kind of structures . Problematics that be part of our Neolithic fire structures studies that we practice at the UMR 6566 Creaah of CNRS.

41 MAKING A WARRIOR: THE SOCIAL IMPLICATIONS OF MARTIAL IDEOLOGIES IN THE PAST

**Session theme:** 6. Intertwining archaeology, heritage, and museums  
**Session format:** Discussion session  
**Session keywords:** Warrior identities, Martial ideologies, Identities, Intersectional approaches  
**Session organisers:** Marianne Moen (Museum of Cultural History, University of Oslo) – Ben Raffield (University of Uppsala)

SESSION ABSTRACT

This session seeks to critically reappraise and explore warrior institutions and warriorhood in archaeological interpretation. We welcome perspectives from all regions/periods and seek open discussions around concepts of warriorhood and more. Papers are sought that address the need to situate ‘warriors’, warrior groups, and warrior



ideologies within a wider cultural and social setting, examining their place within and impact upon their societies and environments, as well as perspectives that seek to query modern investment in archaeological concepts of warriorhood. We welcome a broad range of theories from archaeology, literary scholarship, the history of religions, and the social sciences, along with perspectives from intersectional theory and concepts of relational personhood. Papers that critically examine established notions of warriorhood are especially welcome. We aim to untangle the perceived identities of warriors, and to create new understandings of the wider social frameworks of a martial culture. Key subjects that we would particularly like to explore are themes connected to: Defining warrior status and warriorhood: What is understood by the term ‘warrior’? Who could become a warrior and how. Warrior identities: Intersectional approaches to the social construct of the warrior. What types of intra- and inter-group relationships existed within warrior societies? How did religious and aesthetic aspects of identity construction play out among warriors in the past. Martial identities in a wider perspective: We seek to explore the theoretical and analytical frameworks for understanding martial identities. What can be said of relational perspectives in regard to the diversity of roles of warrior groups within society? How do warrior identities and ideologies play out at home and abroad? What about landscapes of power, conflict, and control. Archaeological interest in warriors: addressing the role of modern biases in constructions of the past. As an interdisciplinary session, we appreciate contributions from a variety of viewpoints and disciplines.

CONTRIBUTION ABSTRACTS

74. THE VIKING AGE RUS’: A PARADOX OF WARRIOR-MERCHANTS

**Contribution format:** Oral  
**Contribution authors:** Csete Katona (Adjunct, Institute of History, University of Debrecen)

Recent archaeological and historical studies of early medieval Scandinavian warrior groups—particularly the Viking Great Army active in Anglo-Saxon England and comparable warbands in Frankia—have highlighted the intricate relationship between violence and “peaceful” trade within the operational strategies of these groups. However, research into the eastern sphere of the Viking diaspora, especially concerning the Rus’, remains underdeveloped. This paper seeks to address this gap by examining the interplay between warfare and trade among the Rus’, drawing on contemporary written sources and selected archaeological evidence. It argues that portraying the Rus’ lifestyle as predominantly trade-focused, in contrast to the traditional “Viking” emphasis on raiding, overlooks the inseparable nature of these activities. For the Rus’, trade and violence were not merely interchangeable tools for wealth acquisition—as well documented in the Western Viking world—but deeply intertwined principles that shaped their way of life and mentality. These dual facets influenced Rus’ behaviour and shaped their perception in the eyes of contemporary partners and adversaries alike. By exploring this theme, the paper offers a comparative lens to better understand Viking Age Scandinavian martial identities and, more broadly, illuminates the complex intersection of peaceful and violent dimensions within the social identities of early medieval warrior groups.

922. PUTTING THE “WAR” BACK IN “WARRIOR”: TRYING TO UNDERSTAND WEAPONS, COMBAT AND MARTIAL PRACTICES IN VIKING AGE DENMARK (600-1200 A.D.)

**Contribution format:** Oral  
**Contribution authors:** Gustav Hejlesen Solberg (National Museum of Denmark | University of Copenhagen | Trelleborg Viking Fortress)

While the study of weapons has been a staple of archaeological research since its inspection, relatively little work has been done to understand their application. Recently, a new wave of Combat Archaeology has put such perspectives into focus. This paper explores the utilization and development of the warrior’s most important equipment, their weapons, in Viking Age Denmark. This is done through Metalwork Wear Analysis, Experimental Archaeology, iconography and written sources. This approach aims to understand the warrior through their martial practices, such as their culturally defined training and fencing styles, and how these develop. This is the exploration of how weapons were held and how the grip is designed, how different axe shapes allow for different attack possibilities and what role experience plays in the use of weapons. Finally, this paper explores the relationship and implication of the study of martial practices to our ideas about warriorhood and warrior-ideology in Viking Age Denmark.

1558. MARTIAL MASCULINITIES: REASSESSING WARRIORHOOD IN EARLY IRON AGE AND ARCHAIC CRETE

**Contribution format:** Oral  
**Contribution authors:** Filippou Roussos (Merton College, University of Oxford)

Warriorhood has frequently served as the principal framework for understanding masculine identities in the archaeology of the Early Iron Age Aegean (11th–6th centuries BC). However, in the absence of a dedicated

gender-oriented approach, this perspective has seldom undergone critical examination in relevant scholarship. This contribution seeks to address this gap by exploring the construction of masculinity on the island of Crete through the lens of martial ideology and warrior identity, with particular attention to shifting modes of expression in the transition from the Early Iron Age to the Archaic period. Drawing on archaeological evidence—primarily from major cemeteries across the island, including Knossos, Eleutherna, Prinias, and Kavousi—I investigate how and to what extent martial masculine ideals manifested within the cultural milieu of early Cretan communities. Emphasis is placed on assessing material culture conventionally associated with warfare, such as weapons, and its perceived role in identifying warriors in the archaeological record. At the same time, I foreground artefacts and practices that have traditionally been excluded from the male experience and set in contrast to ideals of warriorhood. Related figurative imagery across various small- and large-scale media—such as pottery, sculpture, and metalwork—provides valuable insights into differing yet often coexisting masculine ideologies on the island. By situating warriorhood at the intersection of gender and social status, I explore how these constructs were visually and materially embodied, contributing to collective memory and social cohesion, as well as to self-representation and individuality. This paper also critically engages with modern perceptions of martial masculinity in archaeological narratives. It reflects throughout on the impact of past and contemporary gender norms on the interpretation of Cretan warrior identities both in scholarly discourse and the narratives presented by regional museums in Crete.

42 DECODING TIME: A TRANSDISCIPLINARY APPROACH TO ADDRESS COMPLEX PALEOLITHIC CONTEXTS

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Regular session  
**Session keywords:** Transdisciplinary analyses, Multitemporal approach, Palimpsest dissection, Settlement dynamics, Mobility, Seasonality  
**Session organisers:** Valentina Lubrano (Interdisciplinary Center for Archaeology and the Evolution of Human Behaviour (ICArEHB)) – Maria Joana Gabucio (Institut Català de Paleoecologia Humana i Evolució Social (IPHES-CERCA) | Universitat Rovira i Virgili (URV)) – Vincenzo Spagnolo (Dipartimento di Scienze fisiche, della Terra e dell’Ambiente, Università degli Studi di Siena) – Anna Rufá (Interdisciplinary Center for Archaeology and the Evolution of Human Behaviour (ICArEHB) | PACEA-UMR 5199, CNRS, Université de Bordeaux, MCC)

SESSION ABSTRACT

A key challenge in Paleolithic contexts is the complexity of identifying time lapses. The archaeological record often resembles a palimpsest, where traces of multiple human and natural occupations overlap, complicating reconstructing sedimentological histories. Time in archaeology is multidimensional and cannot be understood through a single discipline or technique. It demands a transdisciplinary approach that integrates insights from a range of fields and time scales. Our session stresses how a transdisciplinary approach is essential for accurately interpreting Paleolithic contexts. Each discipline contributes to reconstructing a comprehensive picture, and their dialectical integration is key to addressing the complexity of the archaeological record. Lithic technology and usewear are closely tied to a range of behavioral chains (selection of raw materials, characterization of production sequences, tool use), the lithics reflect settling and mobility strategies. Zooarchaeology and taphonomy reveal hunting patterns, resource exploitation, and types of occupation and provide insights into subsistence activities. The analysis of micro- and meso-wear contributes to understanding seasonality and mortality within an occupation context. The geostatistical analysis of these data, combined with RMU and refit approach, helps to interpret the taphonomy of the site (palimpsests dissection) and the organization of living spaces. Sedimentological analysis adds another layer of detail, clarifying the processes of site formation and transformation, while precise dating allows these events to be anchored to a defined temporal scale. The transdisciplinary approach allows us to address questions such as the type and duration of occupations, seasonal alternation, and mobility patterns. Additionally, it enables the exploration of variability in subsistence patterns and the dynamics of continuity and change in the strategies adopted by Paleolithic societies. To this end, our session aims to promote an integrated transdisciplinary and multiscalar approach that will optimize our understanding of the complex archaeological timeframes and, consequently, the societies of the Paleolithic.



890. TAPHONOMIC ANALYSIS OF THE FAUNAL ASSEMBLAGE FROM SUBLEVEL TD10.4 (GRAN DOLINA, ATAPUERCA, SPAIN)

**Contribution format:** Oral  
**Contribution authors:** Javier Villalobos (IPHES | URV) – Palmira Saladié (IPHES | URV | CSIC Madrid) – Antonio Rodríguez-Hidalgo (CSIC Mérida | IPHES)

The analysis of faunal remains from a taphonomic perspective provides crucial insights into site formation processes and stratigraphic sequences, enabling inferences about past biotic and abiotic dynamics. Faunal assemblages are typically accumulated and modified through the interaction of multiple agents and physical processes. One such case is the faunal assemblage recovered from sublevel TD10.4. Sublevel TD10.4 is the oldest of the four subunits comprising level TD10 at the Gran Dolina site, located in the Sierra de Atapuerca (Burgos, Spain), dated to the Middle Pleistocene (400–450 ka). A comprehensive taphonomic analysis was conducted, encompassing the taxonomic and anatomical composition of the assemblage, mortality profiles, skeletal element representation and preservation patterns, fracturing processes, as well as the nature and distribution of taphonomic modifications observed on bone surfaces. The primary processes influencing the formation of the assemblage occurred predominantly during the subaerial and diagenetic phases, with diagenetic alterations being particularly significant. The karstic conditions of the cavity led to multiple post-depositional modifications affecting the bone surfaces. These alterations significantly transformed the original characteristics of the assemblage and likely influenced the differential preservation of skeletal elements. Such post-depositional processes impose limitations on the interpretation of the assemblage’s formation history. Diagenetic transformations within the cave appear to have played a more determining role than biotic agents. The results indicate the involvement of carnivores of varying sizes during the carcass consumption phase, contributing to both the accumulation and transport of remains. Despite the presence of lithic tools within the sublevel, no direct evidence of anthropogenic activity was identified. This study provides valuable data on the formation processes of Palaeolithic faunal assemblages, particularly in contexts where hominin or carnivore involvement was scarce. Furthermore, these findings contribute to a more comprehensive understanding of the taphonomic complexity of level TD10 within the broader Gran Dolina stratigraphic sequence.

304. HOW DO THE CHARACTERISTICS OF THE SEDIMENTARY MATRIX INFLUENCE THE CLEANING OUTCOME OF ARCHAEOLOGICAL BONES?

**Contribution format:** Oral  
**Contribution authors:** Noé Valtierra (Institut Català de Paleoecologia Humana i Evolució Social | Universitat Rovira i Virgili) – Andrea Díaz-Cortés (Smithsonian’s Museum Conservation Institute) – Héctor Del Valle (Institut Català de Paleoecologia Humana i Evolució Social | Universitat Rovira i Virgili) – Antoine Souron (Université de Bordeaux, CNRS, PACEA UMR 5199) – Miguel Ángel Moreno-Ibáñez (School of History, Classics and Archaeology, University of Edinburgh) – David Martín-Perea (Universidad Complutense de Madrid) – Éric Pubert – Nicolas Vanderesse (Université de Bordeaux, CNRS, PACEA UMR 5199) – Lucía López-Polín (Institut Català de Paleoecologia Humana i Evolució Social | Universitat Rovira i Virgili) – Lloyd Courtenay (Université de Bordeaux, CNRS, PACEA UMR 5199 | Universitat Rovira i Virgili)

Cleaning treatments play an important role in removing sedimentary matrices, enabling the study of archaeological and paleontological bones. These procedures must be carefully adapted to achieve a balance between effective cleaning and minimising the potential impact of the tools employed. The interaction between the tools and bone surfaces can lead to trephic modifications, which should be minimised and thoroughly documented to improve conservation and research outcomes. The effects of cleaning treatments depend not only on the state of bone preservation but also on the nature of the sedimentary matrix and its interaction with the surfaces of the specimens. These factors significantly influence the choice of cleaning methods, tools selection, and even their application. Such decisions, in turn, determine the type and extent of modification caused by the tools. In this study, we analyse samples from three archaeological sites in Spain: Gran Dolina and Galería (Sierra de Atapuerca, Burgos) and Roc de les Orenetes (Queralbs, Girona). The research explores the interplay between three key factors -sedimentary matrix, bone material, and the contact interface - through their study using histology analysis by optical microscopy and scanning electron microscopy, Micro-Computed Tomography (μCT), infrared spectroscopy and X-ray diffracction. While all three sites present bones embedded in concretions, their characteristics differ significantly. The Sierra de Atapuerca sites exhibit strongly adhering concretions, whereas Roc de les Orenetes presents a matrix that, although easier to clean, entirely embeds the specimens. Consequently, the cleaning methods employed, and the modifications produced varied considerably. As a result of this work, it has

been possible to relate differences in the characteristics of the three included sites to variations in the level of modification documented following the application of cleaning treatments. These results contribute to our understanding of the interactions that occur during cleaning and the formation of trephic modifications.

1763. THE ROLE OF THE SCAVENGERS IN THE CAMPSITES: A NEOTAPHONOMIC PROXY TO UNDERSTAND THE HUMAN OCCUPATIONS

**Contribution format:** Oral  
**Contribution authors:** Jordi Rosell – Arnaud Barat – Rubén Llorente-Pérez – Daniel Vivar-Ríos – Maite Arilla – Ruth Blasco (Institut Català de Paleoecologia Humana I Evolució Social (IPHES-CERCA | Àrea de Prehistòria, Universitat Rovira I Virgili (URV))

The prevailing paradigm asserts that prehistoric sites can reflect the entire spectrum of occupational patterns, ranging from short-term occupations by small groups to long-term settlements by larger communities. However, most Middle Palaeolithic assemblages consist of multiple overlapped occupational events that are difficult to disentangle precisely, making their classification challenging. Moreover, current methodologies have yet to identify a specific element—or combination of elements—that allows for unequivocal differentiation between these occupational scenarios. In this study, we analyse archaeological assemblages from several Middle Palaeolithic sites in Western Europe through a zooarchaeological perspective. Despite site-specific variables such as geological, geomorphological, sedimentological, and ecological contexts, most assemblages display strikingly similar characteristics, particularly regarding skeletal profile composition, the representation of bone portions and the spatial dispersal. Based on neotaphonomic studies of modern wild carnivores, we propose that scavenger activity may have played a significant role in shaping the observed uniformity in Middle Palaeolithic zooarchaeological assemblages. While this phenomenon has been acknowledged in the scientific literature, it remains understudied and is not sufficiently integrated into interpretations of site occupation patterns. We argue that considering carnivore scavenging behaviours in human occupation sites is crucial to avoiding misleading inferences about past settlement dynamics.

1626. TAPHONOMIC INSIGHTS FROM QUATERNARY IBERIAN LYNX COPROLITES: IMPLICATIONS FOR PLEISTOCENE BONE ACCUMULATIONS

**Contribution format:** Oral  
**Contribution authors:** Anna Rufà (ICArEHB, Universidade do Algarve | PACEA-UMR5199, Université de Bordeaux/CNRS/MCC) – Montserrat Sanz – Joan Daura (Grup de Recerca del Quaternari (GRQ)-SERP, Universitat de Barcelona)

Pleistocene deposits often result from multiple and overlapping formation processes, making it challenging to identify specific bone-accumulating agents in archaeological contexts. Carnivores play a significant role as bone accumulators, yet distinguishing their contributions remains difficult due to taphonomic biases. Referential studies offer valuable frameworks for interpreting these accumulations, but they are predominantly based on modern collections and may not fully account for the complexities of fossil site formation. This study presents the first taphonomic analysis of fossilized Quaternary Iberian lynx (*Lynx pardinus*) coprolites in a European context. The assemblage, dated to approximately 33 ka BP, originates from layer III of Cova del Gegant (north-eastern Iberian Peninsula), a site interpreted as a lynx den. Building upon previous research, we examine bone remains consumed and excreted by the Iberian lynx to assess its role as a bone accumulator within archaeological settings. Our results align with neo-taphonomic referential studies on lynx accumulations, particularly regarding the dominance of leporid remains. The assemblage exhibits a balanced representation of anatomical elements, with a higher proportion of cranial bones compared to other carnivore accumulations. Taphonomic analysis reveals extensive digestive modifications, with moderate to strong degrees of damage affecting most specimens. These findings enhance our understanding of lynx bone accumulation processes and contribute to broader discussions on carnivore involvement in Pleistocene archaeological sites. Our findings also indicate a dietary consistency between Pleistocene and modern Iberian lynx populations and underscore the importance of incorporating taphonomic data from fossilized coprolites to refine interpretations of carnivore activity in past ecosystems.

508. SHEDDING NEW LIGHT ON THE 18B UNIT OF EL CASTILLO CAVE: REVISITING THE ARCHAEOFAUNAL ASSEMBLAGE

**Contribution format:** Oral  
**Contribution authors:** Natalia Abellán Beltrán (Department of Prehistory and Archaeology (UNED) | International Doctorate School (EIDUNED) | Institute of Evolution in Africa (IDEA)) – Juan Marín-Hernando (Department of Prehistory and Archaeology (UNED) | Institut Català de Paleoecologia Humana i Evolució Social (IPHES-CERCA) | Histoire Naturelle de



l’Homme Préhistorique (HNHP, Muséum National d’Histoire Naturelle)) – Jose Manuel Maíllo-Fernández (Department of Prehistory and Archaeology (UNED) | Institute of Evolution in Africa (IDEA))

El Castillo Cave has been a pivotal site for the understanding of European Middle and Upper Palaeolithic and Palaeolithic rock art since its discovery, with a sequence of 23 meters that extends from Early Middle Palaeolithic to Azilian. In that regard, the Quina Mousterian unit 18 of El Castillo Cave still proves to be relevant for the comprehension of Neanderthal behaviour: the hyper specialization in the hunt of red deer (*Cervus elaphus*) exhibited in units 18b and 18c shows adaptative decisions and, possible cultural ones, allowing us to further recognise the great extent of the knowledge these hominins had over their surroundings. Here, we present the preliminary results of the re-study of the complete faunal assemblage of unit 18b to reassess the human-carnivore interaction in this level, the treatment of the carcasses and the different possible hunting strategies carried out by the Neanderthals of the cave, combining traditional taphonomic and zooarchaeological methods with novel ones based on artificial intelligence.

**2005. REINDEER AND NEANDERTHALS ALONG THE SAÔNE-RHÔNE FLUVIAL CORRIDOR: WHAT SUBSISTENCE STRATEGIES AT VERGISSON IV (MIS 4-3, SAÔNE-ET-LOIRE, FRANCE)?**

**Contribution format:** Oral  
**Contribution authors:** Clarisse Chardot (Histoire naturelle des humanités préhistoriques (HNHP - UMR7194), MNHN, CNRS, UPVD | Département de Saône-et-Loire, Musée de Préhistoire de Solutré) – Camille Daujeard (Histoire naturelle des humanités préhistoriques (HNHP - UMR7194), MNHN, CNRS, UPVD) – Pierre Magniez (Aix Marseille Univ, CNRS, Minist Culture, LAMPEA (UMR-7269)) – Marylène Patou-Mathis (Histoire naturelle des humanités préhistoriques (HNHP - UMR7194), MNHN, CNRS, UPVD) – Alain Argant (Aix Marseille Univ, CNRS, Minist Culture, LAMPEA (UMR-7269)) – Guillaume Guérin (Université de Rennes (UMR 7118), Géosciences, CNRS) – Loïc Lebreton (Institut Català de Paleoecologia Humana i Evolució Social (IPHES-CERCA) | Universitat Rovira i Virgili, Departament d’Història i Història de l’Art) – Marine Massoulié (AnTET - UMR 7141, Archéologies et Sciences de l’Antiquité, CNRS) – Mathieu Rué (Paléotime, Archéologie des Sociétés Méditerranéennes (UMR 5140), Université Montpellier 3) – Sylvain Soriano (AnTET - UMR 7141, Archéologies et Sciences de l’Antiquité, CNRS)

During the Early and Middle Upper Pleistocene, the Western European climate was marked by a glacial phase (MIS 4), followed by rapid, climatic oscillations (MIS 3), which impacted palaeoecosystems, influenced herbivore mobility, and shaped human settlement patterns. The Saône-Rhône corridor likely recorded north-south migrations of Neanderthals and large herbivores during this period. Vergisson IV, near the right bank of the lower valley of the Saône river Valley, is a critical site for studying Neanderthal subsistence strategies and their relationships with reindeer along this corridor. Excavated by J. Combier (1957-1962) and S. Soriano (2021 & 2023), this narrow karst gallery revealed two archaeological units from the late Middle Palaeolithic (MIS 4-3). Chronology relies on a single 14C measurement, lithic studies, and ongoing OSL dating. The faunal assemblage, comprising around 3,000 faunal total remains, is dominated by reindeer, followed by secondary preys such as horse and large bovids. The carnivore remains are scarce but diverse, including for example cave bear, wolf, artic fox or cave hyena. We have few small mammals, including the Hare. This study demonstrates that Neanderthals were the primary agent of accumulation and carcass processing, with evidence of reindeer, horse, bovines and hare consumption. Skeletal representation and butchery marks suggest that some entire carcasses were brought and processed at the site. Bones damaged by carnivores (around 20%) show mainly small-sized tooth marks and taphonomic signatures which could be attributed to the secondary impact of small-sized carnivores on the assemblage, likely canids. We observe a relative homogeneity of these various activities in both archaeological units. To decipher human and carnivore occupations throughout the sequence, we coupled taphonomic data with microstratigraphic distribution of remains. Our results shed light on the settlement dynamics and territorial organization of the Neanderthals in the northern section of the Rhône corridor in relation with reindeer.

**211. ZOOARCHAEOLOGICAL EVIDENCE AND MULTIDISCIPLINARY PERSPECTIVES ON NEANDERTHAL OCCUPATION DURATION: THE CASE OF TEIXONERES CAVE SUB-UNIT IIIB**

**Contribution format:** Oral  
**Contribution authors:** Valentina Lubrano (Interdisciplinary Center for Archaeology and the Evolution of Human Behaviour (ICArEHB)) – Anna Rufà (Institut Català de Paleoecologia Humana i Evolució Social (IPHES-CERCA) | PACEA-UMR5199, Univ. Bordeaux, CNRS) – Ruth Blasco (Institut Català de Paleoecologia Humana i Evolució Social (IPHES-CERCA) | Universitat Rovira i Virgili (URV)) – Florent Rivals (Institut Català de Paleoecologia Humana i Evolució

Social (IPHES-CERCA) | Universitat Rovira i Virgili (URV) | ICREA) – Jordi Rosell (Institut Català de Paleoecologia Humana i Evolució Social (IPHES-CERCA) | Universitat Rovira i Virgili (URV))

When reconstructing Neanderthal behaviour and subsistence strategies, it is important to understand the duration of human occupations at Middle Palaeolithic sites. However, the palimpsest nature of archaeological deposits complicates this analysis, as the overlapping traces of human and carnivore activities blur chronological clarity. This study addresses these challenges by examining faunal remains from sub-Unit IIb of Teixoneres Cave. Located at 760 meters asl near Moià (Barcelona, Spain), Teixoneres Cave holds a nearly six-meter-thick stratigraphic sequence. Sub-Unit IIb, dated to MIS 3 (over 51,000–44,210 cal BP), contains radiocarbon-dated faunal remains documenting human activity. The alternation between human and carnivore occupations offers a unique opportunity to explore site-occupation dynamics. The application of horizontal excavation methods, combined with a multidisciplinary approach, facilitates the reconstruction of the temporal and spatial patterns of occupation. The faunal evidence and insights from previous studies highlight a cycle of short human visits interspersed with carnivore activities. Taking this into account, human activities seem to be concentrated near the entrance, while carnivores predominantly occupy the inner area. Zooarchaeological and taphonomic analyses reveal crucial insights into Neanderthal subsistence strategies, including hunting, butchering, and carcass processing. The findings align with broader patterns observed at other Middle Palaeolithic sites, where factors such as mobility, seasonal variations, and site functionality influenced occupation duration. Moreover, the study emphasizes the challenges of interpreting palimpsest deposits, as overlapping events and post-depositional processes hinder potential interpretations. Positioning Teixoneres Cave within the broader context of Middle Palaeolithic research enhances our understanding of Neanderthal adaptability to dynamic environments and resource use over time.

**1023. SHORT-TERM OR LONG-TERM OCCUPATION? THE LATE MOUSTERIAN SU 14 FROM OSCURUSCIUTO ROCK SHELTER (SOUTHERN ITALY)**

**Contribution format:** Oral  
**Contribution authors:** Vincenzo Spagnolo (Department of Physical Sciences, Earth and Environment, University of Siena | Centro Studi sul Quaternario (CeSQ)) – Jacopo Crezzini (Department of Physical Sciences, Earth and Environment, University of Siena) – Giulia Marciani (Department of Cultural Heritage, University of Bologna) – Francesco Berna (Department of Physical Sciences, Earth and Environment, University of Siena | Department of Archaeology, Simon Fraser University) – Paolo Boscato – Annamaria Ronchitelli – Francesco Boschin (Department of Physical Sciences, Earth and Environment, University of Siena)

Understanding Paleolithic settlement dynamics is a complex task to undertake. The palimpsest effect obscures multiple occupations within a stratigraphic unit, blurring them into a single, indistinct entity. In Paleolithic contexts, the difference between the time it takes for sediments to form and the rhythms and duration of nomadic occupations, further complicates matter, effectively diluting the traces of these occupations within a single opaque horizon. Consequently, identify accurately the “ethnographic time” of each occupation is challenging and requires a robust interdisciplinary approach. The Oscurusciuto rock shelter in southern Italy, with a currently investigated sequence spanning 55-42 thousand years cal BP, offers a unique opportunity to address this challenge, as it contains several intact and well dated living floors and short-term palimpsests constellated by well-preserved hearts. In particular, previous interdisciplinary studies have successfully reconstructed Neanderthal camps life in stratigraphic units (SUs) 13-11. The relative continuity of these occupation patterns, combined with evidence of gradual changes in site organization, suggests a tradition maintained by the same group across generations. This paper focuses on SU 14, a thick tephra unit, accumulated rapidly and containing evidence of a single human occupation during its final stage of accumulation. This context represents both an anomaly (compared to the “normal” palimpsest setting of the other occupational layers) and a unique opportunity to isolate and study a single occupation. This study employs an interdisciplinary approach, integrating zooarchaeology, lithic technology and geostatistics, to determine whether this occupation represents, a short-term or long-term occupation.

**214. A NEW PROJECT AT COVA FORADADA D’OLIVA (VALENCIA, SPAIN). EXPLORING THE MIDDLE AND EARLY UPPER PALAEOLITHIC IN THE MEDITERRANEAN BASIN**

**Contribution format:** Oral  
**Contribution authors:** Aleix Eixea (Universitat de València) – Miguel Ángel Bel (UNIArq–Universidade de Lisboa | Universitat de València) – Yolanda Carrión-Marco (Universitat de València) – Carles Ferrer-García (Servei d’Investigació Prehistòrica–Museu de Prehistòria de València) – Asier Gómez-Olivencia (Universidad del País Vasco) – Álvaro Martínez-Alfaro – Carmen Martínez-Varea – Nahúm Méndez – Cristina Real (Universitat de València) – Alfred Sanchis (Servei d’Investigació Prehistòrica–Museu de Prehistòria de València)



Cova Foradada is probably one of the most important Palaeolithic sites on the Iberian Peninsula. In addition to the large assemblage of industrial and faunal remains recovered from the Middle and Upper Palaeolithic levels, there is an exceptional set of Neanderthal human fossils, including a partial skeleton. This skeleton preserves the skull, the thorax and one of the arm bones found in anatomical position. It was deposited in a small hollow in the wall of the cave, which could correspond to a possible burial. Unfortunately, the archaeological works carried out from the 1970s to the 2000s did not follow scientifically reliable protocols and methodology. On account of this, a new research project started in 2022 led by the Museu de Prehistòria de València and the Universitat de València with four fundamental axes: a) revision of the materials recovered in the previous excavation campaigns in order to confirm the cultural attribution of the cave deposits to the Middle and Upper Palaeolithic; b) To carry out new archaeological excavations with suitable modern working methodologies and a multidisciplinary approach that allow us to record the entirety of the lithic, faunal and archaeobotanical assemblage with the aim of characterise the occupation of the cave more precisely; c) to rigorously document the stratigraphic sequence of the site in order to understand the formation processes of the sedimentary infilling, as well as to carry out a wide range of chronometric to establish the accurate chronology of the occupation levels; and finally, based on all the data obtained, d) to discuss the site within the regional context to assess potential similarities and differences with the population dynamics observed in other contemporary sites.

1426. RAW MATERIAL STUDIES OF THE PALEOLITHIC RECORD FROM HADŽI PRODANOVA PEĆINA IN SERBIA

**Contribution format:** Oral  
**Contribution authors:** Jelena Markovic (National Museum of Serbia) – Vesna Matović (Faculty of Mining and Geology, University of Belgrade) – Bojana Mihailović (National Museum of Serbia) – Dušan Mihailović (Department of Archaeology, Faculty of Philosophy, University of Belgrade)

The site of Hadži Prodanova Pećina is a cave located in the western part of Serbia in central Balkans. Excavations of this Palaeolithic site, carried out in the early 2000s, revealed a small collection of artefacts corresponding to Gravettian and Mousterian contexts. The aim of this paper is to present petroarchaeological study of lithic assemblages and its importance for the reconstruction of behavior in the past. First results of the petrological identification of the artefacts revealed presence of quartzite, quartz, chert and silicified rocks as raw materials for their production with non-identical representation in different Palaeolithic contexts. Analysis of the geological features of the cave’s surroundings, however, shows only a limited occurrence of knappable materials. The possibility to exploit primary and secondary deposits within the local zone was examined. The procurement area, mobility and dispersion of operational sequence were also considered. The results suggest that there is a distinct interdependence among the raw material availability, the site occupation duration and the structure of the lithic assemblages. Raw material studies of Middle and Upper Palaeolithic contexts will be presented first, followed by a comparison of general outlines of raw material economy patterns proposed for both periods.

2141. TIME FOR THE PALEOLITHIC AT LAPA DO PICAREIRO

**Contribution format:** Oral  
**Contribution authors:** Jonathan Haws (University of Louisville | ICArEHB) – Milena Carvalho (ICArEHB) – Michael Benedetti (University of North Carolina Wilmington | ICArEHB) – Grace Ellis (Colorado State University | ICArEHB) – Telmo Pereira (Universidade Autônoma de Lisboa) – Lukas Friedl (University of West Bohemia | ICArEHB) – João Cascalheira (ICArEHB)

In Paleolithic archaeology, time is truly of the essence. This critical factor in understanding the archaeological record is complicated by sedimentation rates, taphonomy, human and animal behaviors that operate at multiple time scales. Unpacking the palimpsest archaeological record requires insights from different methodological perspectives. At Lapa do Picareiro, a Paleolithic cave site in central Portugal, we have excavated a roughly 15 x 15 m cavern to a depth of about 11.5 m, revealing a lengthy sequence of Middle and Upper Paleolithic occupations interspersed with nonhuman predator occupations. Our goal is to understand human responses to climate and environmental change during the last 60,000 years. Total station mapping of artifacts, bones, and features allows us to identify occupation horizons and activity areas. Lithic technological, raw material, and refitting studies provide additional means of establishing contemporaneity of artifact assemblages within the horizons. We use taphonomic and spatial analyses of the faunal remains to determine separate human versus natural accumulations. Over 100 radiocarbon dates throughout the sequence provide age control for the layers and an age-depth model. Finally, we use magnetic susceptibility measurements through the sequence that record paleoclimatic signals that can be visually matched with the Greenland ice core records to correlate human occupations with Late Pleistocene climate phases. Here, we present data from Levels T through X, dated ~24-31ka cal BP, that contain a series of human and nonhuman occupation horizons superimposed over one another. We also include Levels

DD-II, representing discrete human occupations dated ~35-41ka cal BP. With stratified age control and paleoclimatic proxies, we document changes in occupation intensity, raw material acquisition, and technology linked to abrupt climate shifts. The taphonomic data from faunal assemblages provide insights on alternating use of the cave and subsistence adaptations.

2215. SUBSISTENCE STRATEGIES OF UPPER PALAEOLITHIC HUMAN GROUPS IN THE DNIESTER AREA (UKRAINE)

**Contribution format:** Oral  
**Contribution authors:** Laëtitia Demay – Stéphane Péan (National Museum of Natural History, UMR 7194 HNHP MNHN/CNRS/UPVD, France) – Marjolein Bosch (Austrian Archaeological Institute, Austrian Academy of Science | Department of Prehistory, Natural History Museum, Vienna | Department of Prehistoric and Historical Archaeology, University of Vienna) – Marta Połtowicz-Bobak (Institute of Archaeology, University of Rzeszów) – Dariusz Bobak (Foundation for Rzeszów Archaeological Centre) – Philip Nigst (Department of Prehistoric and Historical Archaeology, University of Vienna | Human Evolution and Archaeological Sciences (HEAS), University of Vienna) – Stéphane Pirson (AWaP, Service Public de Wallonie, Direction d’appui Scientifique et Technique, Jambes | European Archaeometry Centre and Department of Geology, University of Liège) – Timothée Libois (Prehistory service, University of Liège) – Aleksandr Sytnik (Ivan Krypiakevych Institute of Ukrainian Studies, National Academy of Science of Ukraine) – Larissa Koulakovska (Institute of Archaeology and Museum, National Academy of Sciences of Ukraine)

The archaeological research conducted in the last decades allowed to highlight important data about the human occupations and paleoenvironmental conditions during the Upper Paleolithic in the East Carpathian area. More recently new sites were discovered and excavated (such as Doroshivtsi III and Korman IX), and new analyses were conducted on collections to better understand the Gravettian and Epigravettian occupations and subsistence practices in this area. We focus on the Carpathian and part of Middle-Podolsk regions of the Dniester basin, bordered by the outer Eastern Carpathians, in Ukraine. We present here an updated synthesis including the last discoveries and studies on known sites, considering chronological and paleoenvironmental data as well as behavioural data from lithic and, particularly from faunal remains. Our objective is to better understand the evolution of subsistence strategies as well as the modalities of territory occupation during the Upper Palaeolithic by the nomadic societies in the western segment of the East European Plain.

2006. TAPHONOMIC INVESTIGATIONS OF A LATE PLEISTOCENE/HOLOCENE FAUNAL ASSEMBLAGE IN THE ZAGROS MOUNTAINS (IRAN) : THE CASE OF THE WEZMEH CAVE

**Contribution format:** Oral  
**Contribution authors:** Angela Nosedà (Histoire naturelle des Humanités préhistoriques, (HNHP, UMR 7194), CNRS, UPVD | BioArchéologie, Interactions Sociétés Environnements (BioArch, UMR 7209), CNRS) – Camille Daujeard (Histoire naturelle des Humanités préhistoriques, (HNHP, UMR 7194), CNRS, UPVD) – Fabrice Bray (Miniaturisation pour la Synthèse, l’Analyse et la Protéomique (MSAP, UAR 3290)) – Xavier Gallet (Histoire naturelle des Humanités préhistoriques, (HNHP, UMR 7194), CNRS, UPVD) – Antoine Zazzo (BioArchéologie, Interactions Sociétés Environnements (BioArch, UMR 7209), CNRS) – Fereidoun Biglari (Paleolithic Department, National Museum of Iran) – Marjan Mashkour (BioArchéologie, Interactions Sociétés Environnements (BioArch, UMR 7209), CNRS | Bioarchaeology Laboratory, Central Laboratory)

Karstic cavities often yield faunal assemblages in the form of palimpsests, as they are commonly visited by many animals, including humans. The taphonomic study of faunal remains from such fossil assemblages can disentangle these mixed collections, and the place each taxon occupied in paleoecosystems. The Wezmeh Cave (Zagros Mountains, Iran) has yielded a large faunal assemblage dated from the late Pleistocene and Holocene. The remains of more than ten carnivore species were found, the most important ones being the red fox, spotted hyena, brown bear and wolf; followed by small and large felids, mustelids, and herpestids. This site counts among the few which document the biodiversity of Pleistocene carnivores in the region. A large collection of herbivore remains was also discovered, consisting mainly of ovicaprines (goats, sheep), suids, and to a lesser extent cervids (red deer, fallow deer), bovines, gazelles, and a rhinocerotid. In addition, a Neanderthal premolar tooth was also recovered. Prior to its discovery, the cave suffered from looting activities that disturbed its stratigraphy, making it difficult to interpret the origin of the accumulations. To better understand the site occupations and chronology, we carry out the taphonomic analysis of over 9,000 faunal remains, complemented by direct 14C dating, and multidisciplinary analyses (osteometry, proteomics, Fourier Transform Infrared Spectroscopy (FTIR)). Our results



shed light on the complexity of ovicaprine accumulations, often resulting from multi-agent processes. We bring forward in particular the major role played by natural processes like trapping or sheltering. Furthermore, 14C dates on collagen sharpen the site’s temporal resolution, clarifying the timing of ovicaprines’ presence. Indeed, dates spanning from the late Glacial Maximum to the mid-Holocene suggest that both wild and domestic herbivores are represented. These dates highlight time lapses in the site’s occupation, and support the occurrence of successive visits over time by carnivores, humans, and herbivores.

**587. DISCERNING PLEISTOCENE CARNIVORE ACTIVITY THROUGH GEOMETRIC MORPHOMETRICS AND MACHINE LEARNING: AN EXAMPLE FROM CUEVA FANTASMA (ATAPUERCA, SPAIN)**

**Contribution format:** Poster  
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Site formation processes are often difficult to decipher at many archaeological sites due to the interaction of different carnivore species and hominins, generating a palimpsest. Though carnivore and human action can be fairly well distinguished based on the traces both agents leave on the carcasses, equifinality is a significant problem regarding the identification of specific carnivore taxa based on toothmarks. Thus, in recent years efforts have been made to improve classification accuracy. This includes quantitative methods, such as geometric morphometrics and machine learning algorithms. This study aims to discern specific carnivore activity in a sample from Cueva Fantasma (Atapuerca, Spain), a Pleistocene site with deposits preliminarily ascribed from Lower to Upper Pleistocene. The level SF30A of the aforementioned site contains fossil remains from at least four different carnivore species, making a straightforward interpretation of the site difficult. Within this context, a selection of toothmarks has been analysed and compared through geometric morphometrics and machine learning techniques to identify the main accumulating and modifying agent at Cueva Fantasma.

**1994. RATLLA DEL BUBO SITE (ALICANTE, SPAIN) – A PIVOTAL SEQUENCE FOR UNDERSTANDING THE EARLY UPPER PALAEOLITHIC IN THE IBERIAN MEDITERRANEAN**

**Contribution format:** Poster  
**Contribution authors:** Álvaro Martínez-Alfaro (Universitat de València – Grupo de investigación PREMEDOC) – Miguel Ángel Bel (Universitat de València – Grupo de investigación PREMEDOC | UNIAQR – Centro de Arqueologia da Universidade de Lisboa) – Valentín Villaverde – Aleix Eixea (Universitat de València – Grupo de investigación PREMEDOC)

The onset of the Upper Palaeolithic in the central Iberian Mediterranean basin remains poorly documented, mainly due to the scarcity of reliable sequences attributed to the Aurignacian. The antiquity of some excavations, or the lack of detailed studies, has conditioned our understanding of this phase of human evolution. Ratlla del Bubo is a key site for defining the Early Upper Palaeolithic in the Mediterranean basin, although some archaeological materials remained partially unpublished until recent research. The site’s history is complex: initial clandestine excavations were later followed by two phases of scientific intervention in separate sectors (inner and outer), providing only a relative understanding of the occupation sequence. Currently, we know that the earliest occupations are associated with the Evolved Aurignacian, which are subsequently followed by levels attributed to the Gravettian and Solutrean. In 2024, a team from Universitat de València started a new research project that employs a multidisciplinary methodology to address aspects related to lithic techno-typology, lithic raw materials, chronology, botanical and faunal resources, and sedimentology, among others. In this poster, we present the results of an integrated sequence revision, encompassing an analysis of the lithic industry and chronology. We also outline preliminary results from the recent intervention, which have extended the basal sequence to include levels possibly related to the Middle Palaeolithic and shed light on the undocumented archaeological sequence between the Gravettian base of the outer sector and the top of the Evolved Aurignacian of the inner sector. Ultimately, the aim is to update the data and underscore one of the region’s most important sequences, which is set to play a key role in defining not only chrono-industrial aspects but also our overall understanding of the Middle Palaeolithic and the onset of the Upper Palaeolithic in the Valencian area.

**44 REPLICAS, COPIES, AND FAKES: MOVING FROM ISSUE-FREE TO ISSUE-DIFFERENT SOLUTIONS. NEW(-ISH) ETHICAL CHALLENGES IN ARCHAEOLOGICAL PROFESSIONS**

**Session theme:** 4. De nobis fabula narratur: archaeological practice and a profession in flux  
**Session format:** Regular session  
**Session keywords:** professional ethics, new challenges, replicas, copies, fakes  
**Session organisers:** Nicole Crescenzi – Angela D’Alise (IMT School for Advanced Studies Lucca) – Liv Nilsson Stutz (Linnaeus University)

**SESSION ABSTRACT**

Replicas and copies in archaeology are not a novelty. Pompeii’s casts are renowned worldwide, and in the long-debated restitution process for the Parthenon’s marbles, copies have been proposed as a win-win solution. Using replicas improved museums’ accessibility for the visually impaired and allowed the sharing of artifacts worldwide without moving – and risking compromising – them. They are an integral part of the work of the archaeologist. Today, they are becoming a preferred solution to various ethical challenges, from decolonization to display, from education to accessibility. Yet, this “cure to all evil” might be an “issue-different” rather than an “issue-free” solution. This theme is profoundly intertwined with the realization of fakes, and their relationship is constantly moving. Falsified reconstructions of graves, creations of abnormalities in Wunderkammer (still employed today, either to attract the public or to show examples of bad practices): where do we draw the line. In this session, we will focus on concrete case studies that illustrate the broader ethical challenges we are facing:

- Is it ethical to display falsity, even with the best intentions?
- Should we create replicas when we are unsure of their truthfulness?
- Does the use of replicas undermine our credibility among the public, or does it help us communicate better?
- Facing the potential of new technologies and the ever-growing call for open access and open science: Where does ownership lie? Is it fair to share the raw data, knowing that 3D printers are easily accessible? Who authorizes its creation.

Through these papers, we hope to inspire a discussion that, instead of seeking easy solutions, underscores the importance of a sustained and engaged discussion of archaeological professional practice and ethics in a constantly evolving world. Prof. Liv Nilsson Stutz will provide final remarks to conclude the session.

**CONTRIBUTION ABSTRACTS**

**1379. DIFFERENT FORMATS, SAME PROBLEMS? EXAMINING THE ETHICS OF DIGITAL COPIES OF ARCHAEOLOGICAL HERITAGE**

**Contribution format:** Oral  
**Contribution authors:** Hayley Mickleburgh (University of Amsterdam | Forensic Anthropology Center Texas State University)

Digital copies are increasingly used as go-to solutions for increased accessibility, preservation of originals, and greater engagement with wider audiences. Such digital surrogates appear to offer straightforward ethical advantages: helping to democratize knowledge and protecting original artefacts. But closer scrutiny reveals they can replicate longstanding challenges and dilemmas. Issues of who determines narratives, perpetuation of colonial legacies, and lack of inclusivity do not simply disappear when archaeological heritage exists in the digital realm. For example, 3D replicas are often cited as a solution for reciprocal restitution, yet still have the potential to reinforce power imbalances through digital neocolonialism; the open science movement being a powerful driver of this. The ease of creating and disseminating 3D scanned human remains or culturally sensitive objects raises all too familiar questions regarding dignity and respect. The digital turn introduces additional complexities, however. With the ease of sharing digital copies comes the risk of easy detachment from archaeological and sociocultural context. The speed and reach of digital dissemination can magnify loss of contextual information and increase unintended public consumption. Moreover, digital formats are rarely permanent: they frequently become obsolete as software evolves or when digital curation falls short. While partly unique to the digital format, these issues nevertheless echo longstanding concerns about which materials we choose to preserve or discard, which objects we share and display. It is clear that ethical responsibilities cannot be bypassed merely by shifting to a digital medium. However, the promise of efficiency of digital approaches has obscured the commitment necessary for responsible. ethical curation. Digital copies require continuous care, updates, and thoughtful governance of data, no less labour-intensive than caring for physical collections. This paper examines how both familiar concerns and emerging ethical issues converge in the digital domain, as digital copies present us with both old and new obligations.



1258. ARCHAEOLOGICAL ARTEFACT REPLICAS AS TOOLS FOR CULTURAL DIPLOMACY: A COMPARATIVE DISCUSSION ON TURKEY’S TWO GIFTS AT THE UN HEADQUARTERS, NYC

Contribution format: Oral  
Contribution authors: Zeynep Akture (Izmir Institute of Technology (IZTECH))

The UN headquarters in NYC has a collection of artworks and artefact replicas gifted by the Member States, including two from Turkey. Produced by two state-commissioned artists with very different backgrounds and professional profiles, and gifted respectively in 1970 and 2021, these are catalogued as “Replica of Peace Treaty between Hattusilis and Ramses II” and “Göbeklitepe Limestone Stele”. The corresponding “original”s, unearthed in two UNESCO World Heritage properties, are popularly known as the World’s earliest peace treaty and oldest purpose-built religious site. Instead of being “a copy of an existing original or of another replica”, as in the common definition of a replica, the first is a sizeable bronze wall panel fifteen times larger than the copied clay tablet fragments from the Hittite capital Boğazköy while the second is a half-scale stone sculpture copying T-shaped stele P18 from Structure D at Göbekli Tepe, in isolation from the surrounding steles and walls, and similar adjacent spatial arrangements. While the panel is on display at the entrance to the UN Security Council, the stele is close to a garden gate connecting to the Turkevi Center across the street whose renovation has recently been on the headlines among allegations against the NYC Mayor, Eric Adams. Based on such differences, the proposed paper will compare the two gifts as materializations of a shift in Turkey’s use of archaeology as a tool for cultural diplomacy to highlight usefulness of replica biographies revealing their contexts of (re)production as a basis to discuss the ethical challenges caused by the formal, contextual, intentional, and functional variety of archaeological artefact replicas.

1149. ARE THESE ALL REAL? VISITORS’ PERCEPTIONS ON HUMAN REMAINS AND REPLICAS AT MORGAGNI MUSEUM OF ANATOMY IN PADUA

Contribution format: Oral  
Contribution authors: Giovanni Magno (University of Padua) – Alice Cusan (University of Aberdeen)

Anatomical museums have long occupied a space between science, history, and public curiosity. Visitors often assume that all human remains on display are authentic, yet many collections include reconstructions, modifications, and possible replicas. This case study examines visitor responses to human remains at the Museum of Anatomy in Padua, where historical specimens, artificial reconstructions, and replicas coexist. Analysing visitor perceptions offers insight into how and to what extent uncertainty about authenticity influences engagement and emotional impact. Does the knowledge that a specimen might be a replica change its perceived value. This research situates these questions within broader debates on authenticity and public trust and considers the ethical implications of replicas in museum displays. Replicas are often seen as solutions to conservation, accessibility, and repatriation concerns, yet their presence may introduce new dilemmas. In an era of digital reconstructions and 3D printing, where does authenticity lie, and how should museums navigate the balance between education and ethical responsibility. By addressing these issues, this case study contributes to discussions on the role of museums in shaping public understanding of the past. It invites reflection on how perceptions of authenticity continue to evolve in a world where the line between the real and the reconstructed is increasingly blurred.

311. BRINGING A FAMOUS MUMMY TO LIFE

Contribution format: Oral  
Contribution authors: Elisabeth Vallazza (South Tyrol Museum of Archaeology)

A man was murdered during the Copper Age on an Alpine glacier and, due to a remarkable series of coincidences, remained preserved in ice for over 5,000 years—along with his clothing and equipment. Since 1998, this exceptionally well-preserved mummy has been conserved in the South Tyrol Museum of Archaeology (Italy), where it is also visible to the public. Upon the museum’s opening, a decision was made to create a reconstruction to visualize the individual’s appearance during his lifetime. Over the years, scientific research—particularly DNA analysis—has provided increasingly detailed insights into his physical characteristics. As a result, a new reconstruction was commissioned in 2011. This image has since become iconic and is essential to the museum’s communication. The public is captivated by the lifelike figure, which transforms the mummy back into an individual. However, many visitors assume that this is an exact representation of how he looked in life. In reality, what we present is an artistic interpretation based on scientific evidence, not a 3D-printed replica of the actual person. How should we handle ongoing discoveries about the man’s potential appearance? The figure, a technically sophisticated work by paleo-artists Adrie and Alfons Kennis, cannot be continuously modified or updated. Would a digital reconstruction be a better option for the future?

46. POMPEII CASTS: HUMANS TO BE PROTECTED OR OBJECTS TO BE DISPLAYED? SCIENTIFIC, ETHICAL, AND TECHNOLOGICAL ISSUES

Contribution format: Oral  
Contribution authors: Angela D’Alise – Nicole Crescenzi (IMT School for Advanced Studies Lucca)

October 24th, 79 AD is the date currently accepted for the main eruptive event ever to occur on the Vesuvius in historical times, causing the complete destruction of Herculaneum, Pompeii, Stabiae, and Oplontis, whose ruins were buried until the 18th century. The first excavations in Pompeii were carried out in 1748 under the ruling of Carlo III Borbon. Since the very beginning, the archaeological site represented an essential instrument for his political propaganda. However, it wasn’t until 1863 that what made Pompeii famous worldwide came to light: the casts, which are still today the main tourist attractions. Since their first creation with Giuseppe Fiorelli, Pompeii’s casts, and the human remains contained within, have been the protagonists of research, display, public outreach, newspaper articles, and social media. Often praised for their scientific interest and importance for research, sometimes criticized for showcasing unimaginable pain and violating the past persons’ privacy, they have become increasingly controversial with the increased attention towards professional ethics related to archaeological human remains. Applying new technologies to studying the bones within the casts proved that sometimes the outside does not correspond to the inside. What does this discovery mean? Are the casts replicas of the human person supposedly contained within? Are they fakes, since what we see thanks to the cast may not represent the human remains inside of it? Are they something else entirely? And what professional ethics should be applied to them? In this paper, we will try to answer these questions, bringing together the history of the site, the tradition of the casts, an investigation of the Archaeological Park of Pompeii social media, and the new ethical challenges related to the use of fakes, copies, and replicas of human remains.

1246. OBJECT LESSONS: THE DEER HUNTERS SARCOPHAGUS AND LEARNING TO LIVE WITH AMBIGUITY

Contribution format: Oral  
Contribution authors: Margaret Woodhull (University of Colorado Denver) – Jessica Powers (San Antonio Museum of Art)

In 1990, the San Antonio Museum of Art in Texas (USA) received a fine collection of Greek and Roman antiquities from a well-known collector. Among the objects in the collection was an unusual example of a second-century CE stadtrömische garland sarcophagus, dubbed the Deer Hunters Sarcophagus for the decorative, rustic hunting scenes in the lunettes above the concave swags across its façade. Undocumented when it appeared on the art market in 1989, the sarcophagus’s high-quality, exceptional carving, uncertain origins, and excellent state of preservation have raised questions about its production, historical status, and display in the museum. Comparison of the San Antonio sarcophagus with a near-twin, discovered on the Via Labicana in Rome, now on display in the Museo Nazionale delle Terme and bearing almost identical scenes of hunting in its lunettes, reveals stylistic idiosyncrasies in the former object that offer a compelling framework for discussing questions of authenticity in the San Antonio masterpiece. These issues position the San Antonio sarcophagus in a larger discourse on the value of displaying works of ambiguous antiquity and raise questions of tolerance and pragmatic value which ambiguity can elicit in the absence of certainty. This paper takes an interdisciplinary approach to these concerns by considering the philosophical, economic, artistic, and archaeological significance of artefact ambiguity through a close study of the Deer Hunters Sarcophagus and its museum context.

277. RECYCLING ANTIQUITY: THE CONFLICT BETWEEN MATERIAL VALUE AND CULTURAL SIGNIFICANCE IN 19TH-CENTURY COLLECTORS’ MODELS

Contribution format: Oral  
Contribution authors: Eliška Petreková (Masaryk University, Brno)

The early 19th century witnessed the rise of a new group of artisans, the Scarpellini or stonemasons, who crafted architectural models using marble sourced from ancient ruins. Although these models were widely available and mass-produced, their material—ancient marble originating from historic structures—bestowed them with prestige and uniqueness. Therefore, these models paradoxically combined popular accessibility with the authenticity of cultural heritage. This paper focuses on two ethical questions associated with these models. The first explores the boundary between souvenirs and cultural heritage: When did these models make antiquity accessible to a broader audience, and when did they trivialize its value? The second question focuses on the secondary use of authentic ancient marble itself—why was it considered legitimate at the time, and could there have been a balance between appreciating the material’s authenticity and protecting cultural heritage? Using these models as a case study, this paper demonstrates how historical collecting practices can serve as a foundation for contemporary debates on the ethics, preservation, and presentation of cultural heritage. Additionally, it raises the question of how modern society perceives and evaluates these controversial symbols of collecting passion.



45 THE LONG LASTING END OF THE MIDDLE AGES BETWEEN THE MEDITERRANEAN AND THE NORTH SEA. APPROACHES, METHODS, MODELS

Session theme: 2. Intertwined Epistemologies: Transcending the Data – Theory Divide  
Session format: Regular session  
Session keywords: postmedieval archaeology, transition, middle ages, methodologies, theoretical approaches  
Session organisers: Carlo Citter (University of Siena) – Josè Maria Martin Civantos (University of Granada) – Marco Milanese (University of Sassari)

SESSION ABSTRACT

Archaeological evidence has shown that traditional timelines of the transition from the Middle Ages to the modern era do not adequately capture the complexity of the situations encountered in this field of research. The Black Death served as a pivotal moment for many regions, yet its effects were not uniform. The introduction of new plants from the Americas in the 16th century initiated a significant transformation in land use, a process that unfolded over a long period. While the development of capitalism has been widely discussed, archaeology still has much to contribute. Europe and the Mediterranean experienced divergent paths, and researchers often focus on individual regions, missing the chance to exchange methods and interpretive models. This session seeks to unite researchers from both postmedieval/historical and medieval archaeology to discuss recent case studies and offer a broader perspective. Another goal is to publish the session proceedings in an open-access format to stimulate wider debate within the scientific community. We invite proposals from those engaged in large-scale projects as well as localized case studies. We encourage submissions from various European regions to showcase differing outcomes, timelines, and methodologies. Additionally, we welcome contributions from both freelance and professional archaeologists alongside academics and those employed by central and local public institutions.

CONTRIBUTION ABSTRACTS

972. METHODOLOGICAL APPROACHES TO ANALYZING THE CALABRIAN CONTEXT IN THE TRANSITION FROM THE MIDDLE AGES TO THE MODERN ERA

Contribution format: Oral  
Contribution authors: Alessandra Coleschi – Assunta Campi – Camilla Felicioni – Marco Martini (University of Siena)

The contribution presents three distinct case studies from Calabria, a region in Southern Italy, which highlight both unique and shared aspects of the transition from the Middle Ages to the Modern Era, comparing and reflecting on the application of different research methodologies. The first case concerns the excavation of a medieval castle, where structural analysis, combined with the archaeological findings, reveals a long-lasting use of the site that extended into the Modern Era. The second study focuses on the rural landscape, aiming to contextualize the dynamics changes surrounding the medieval castle extending up to the current era. The third case investigates a defensive wall circuit through architectural analysis, concentrating on wall readings and structural characterization. By comparing these three case studies, the contribution illustrates the various methodological approaches employed in archaeological research, proving to offer a deeper understanding of this crucial period of historical transition often overlooked by documentary sources.

1975. INSIGHTS INTO THE LATE MEDIEVAL TRANSITION FROM TEST PIT EXCAVATION IN RURAL SETTLEMENTS ACROSS NORTHERN EUROPE AND ITS WIDER POTENTIAL

Contribution format: Oral  
Contribution authors: Carenza Lewis (University of Lincoln)

This paper will review data from two large-scale projects involving large numbers of localised case studies of rural settlements to show what light they throw on the late medieval to early modern transition in northern Europe, and to consider how transferrable this methodology might be to understanding late medieval change other regions. The methodology used has been excavation of 1m square test pits, used in the CORS (Currently Occupied Rural Settlements in England) and CARE (Community Archaeology in Rural Environments)) projects in more than 100 northern European rural settlements in England, Netherlands, Czech Republic, Germany and Poland. The use of the same methods to excavate every test pit allows the amount of pottery recovered from different test pits to be compared, and mapping this data can show which parts of settlements were in use at different times. This shows when and how the settlements appeared, grew, contracted or were abandoned, while comparing the patterns in different settlements allows common patterns to be observed, and divergent trajectories identified. This paper will firstly consider what light this work has thrown on the transition from the later medieval to early

post-medieval periods, as the pottery data shows how communities responded to event as diverse as the Black Death to the religious wars of the sixteenth century which affected different places in Europe in different ways. Secondly, this paper will consider the potential opportunities and pit-falls of using this approach even more widely to provide a pan-European multi-scalar picture of change over time, and consider how the challenges of calibrating analytical thresholds to ensure inferences are valid in different regions could be met.

2079. LIFE AND TRADE AT THE MARGINS OF MODERN STATES

Contribution format: Oral  
Contribution authors: Alice Lucchini (University of Zadar) – Eleonora Delpozso (Università Ca’ Foscari di Venezia) – Marta Laureanti (CESVI)

This paper presents the remains of a flat-bottomed riverboat discovered in the lower Oglio River, in the province of Mantua. Emergency archaeological work conducted during the severe drought of the summer of 2022 led, for the first time, to an intervention by the Cultural Heritage Office and to the documentation and sampling of the shipwreck to assess its value. At the time of its emergence, the remains were already known to local inhabitants, but they had not been reported to the authorities, as they believed them to be those of an old working boat from the 20th century. Others speculated a possible connection with an old dogana (customs station), recorded in the toponymy of modern cartography and traced back to the 18th century. However, radiocarbon dating revealed a much older origin, placing the boat’s construction between the 15th and early 17th centuries. The boat was found in a liminal territory that, over these centuries, served as a borderland between the Duchy of Mantua and the Duchy of Milan, transitioning from Spanish to Austrian rule, and eventually being incorporated into the Kingdom of Lombardy-Venetia. The study examines the archaeological remains of the boat and its possible functions, correlating the findings with data from the UAV survey conducted in the area. It also considers other nearby watercraft remains and written sources to explore the possible continuity of trade before and after the establishment of customs stations in the region, while also reflecting on the role of these stations in the emergence of modern states.

2517. THE PROJECT MED2MOD: THE OTHER TRANSITION

Contribution format: Oral  
Contribution authors: Carlo Citter (University of Siena)

This paper presents a multiscalar, multiagent project focused on the transition from the Middle Ages to capitalism in central and southern Italy. While centred on a specific region, the project seeks to situate Italy within the broader Mediterranean context. At the start of this process, Italy was a core part of old Europe, but by the end, it had become a peripheral province in the global network. The project functions as an umbrella, encompassing several sub-projects. Each sub-project is centred around a primary site for long-term excavation, with the surrounding landscape studied through survey. The wealth of material data gathered challenges traditional historical models based on literary sources, offering a fresh narrative for this pivotal period that shaped today’s landscapes. The project benefits from the support of various public institutions and European universities. The preliminary results of this project are already available at the website [www.med2mod.it](http://www.med2mod.it). Last but not least the project aims to promote a social engagement and to boost local economies thanks to the valorisation of the archaeological heritage.

2525. THE LONG MIDDLE AGES: THE VIEWPOINT OF ARCHAEOLOGY

Contribution format: Oral  
Contribution authors: Marco Milanese (University of Sassari)

The aim of this contribution is to reflect on the length of the Middle Ages, with the doubl. observatory, both from the point of view of political or eventual history, and from the point of vie. of archaeology. The fragility of a historical chronology based on exact dates, such as 1453 or 1492 in the case of the end of the Middle Ages, is well known, a fragility that becomes clear when confronted wit. economic structures, society, but particularly with archaeological data. The French historian Jacques Le Goff has formulated a counter-current assertion, namely that the Middle Ages came to an end in the 19th century and that its pattern of values did not die ou. completely until the middle of the 20th century. The statement may seem harsh and unacceptable to historians of written sources, whereas fo. archaeologists working on material sources this viewpoint is sharable and does not give rise to any misgivings. In urban and rural archaeology, this becomes clear if we note that the ceramic record in stratigraphic sequences and archaeological contexts from the 13th to the 18th century shows a technological continuity that can make materials indistinguishable for over 500 years, if not in the face of careful morphological and possibly decorative study of ceramic productions. Handicraft production structures are often extremely conservative, so much so that they remained unchanged from Middle Age until the 20th century and were completely indifferent to the impact of the industrial revolution, which in the Mediterranean area was limited to a few production centres.



2528. TRADITIONAL IRRIGATION SYSTEMS. A RESILIENT HISTORY FROM THE ISLAMIC PERIOD TO GLOBAL CHANGE IN SOUTHEAST SPAIN

Contribution format: Oral  
Contribution authors: Jose Maria Martin Civantos (University of Grenada)

This paper presents a general historic approach to irrigation systems from an integrated approach based on their resilience capacity to face political, social economic changes from the Islamic period to the most recent challenges and threatens provoked by Global Change, and more specifically due to the intensification and industrialization processes and policies. The irrigation structure, the governance institutions and the local ecological knowledge have allowed not only to resist, but also to adapt to changes. The work already carried on by the MEMOLab, laboratory of Biocultural Archaeology of the University of Granada, has allowed us to know better all these mechanisms and promote the restoration and an innovative social intervention in these irrigation systems during the last 10 years.

800. DIALOGUE BETWEEN MATERIALS AND METHODS. SÃO FRUTUOSO DE MONTÉLIOS IN THE CONSTRUCTION OF THE EARLY MEDIEVAL LANDSCAPE OF BRACARA (PORTUGAL)

Contribution format: Oral  
Contribution authors: Francisco Andrade (UAUM, Lab2PT, UMinho, IN2PAST) – Rebeca Blanco-Rotea (Lab2PT, UMinho, IN2PAST) – Jorge Sanjurjo-Sánchez (University of A Coruña)

The city of Bracara Augusta underwent a major transformation in Late Antiquity that affected not only its urban landscape but also its relationship with the surrounding area. The new Bracara was built on a pre-existing space that represented an urban nucleus and an important network of roads that linked it to its hinterland, while at the same time communicating it with other centres of power on the Iberian Peninsula such as Lucus Augusti, Asturica Augusta and Augusta Emerita. In this transformation, the role played by the ecclesiastical centres was fundamental, elements that articulated the landscape and the dynamics of power in the surroundings of Bracara, while introducing new forms and construction techniques, materializing the heterogeneity of the new social, political, cultural and economic reality of the Early Medieval Ages in Europe. São Frutuoso de Montélios is one of the great centres erected in Bracara during this period. The mausoleum has an architectural model that is not usual in the Iberian Peninsula. Its approach from an interdisciplinary study that interweaves social and natural sciences leads us to develop new methodological approaches and interpretative frameworks in the study of medieval archaeological reality. In this paper, we will try to show this perspective from the dialogue between materiality and research methods in Medieval Archaeology.

46 WHAT CAN BODIES DO? THE ARCHAEOLOGY OF EXPERIENCE

Session theme: 2. Intertwined Epistemologies: Transcending the Data – Theory Divide  
Session format: Regular session  
Session keywords: embodiment, the body, lived experience, landscape, bodily skills, bodily becoming  
Session organisers: John Chapman (Durham University) – Dimitrij Mlekuz (University of Ljubljana)

SESSION ABSTRACT

The main focus of this session concerns archaeological ways to approach embodiment. We begin with the body – quintessentially the subject and existential ground of culture. The body is not simply ‘flesh and bones’, an autonomous actor or the result of signification. Rather, it can be understood as a repository of biological impulses and cultural–neurological habits emergent through its interweavings with the world. This requires us to re-think the materiality of the body and focus on what bodies can do and how they take shape through interactions with other objects, bodies and landscapes. Embodiment depends on how the body is used. Our bodies are mutable because living in a body means being affected, moved, put into motion and shaped by its total surroundings. The disclosive nature of being in the world is available only through bodies and bodily competencies. Think how the skill of skiing completely changes our landscape by transforming an impassable, hostile wasteland into a locus of fun and enjoyment. We are interested in archaeological case studies which examine how skilled bodies emerge with the landscape by engaging the practices and technologies of bodily becomings. Relevant case studies could include:

- (1) The practices and material culture of swimming, sailing, diving, and fishing, which shape our interactions with land- and sea-scapes.
- (2) relationships between hot springs, swimming, pleasure and the body (e.g., settlements related to hot / mineral springs).
- (3) Embodiment in a specific landscape, where bodies in upland landscapes must learn the skills of negoti-

- ating steep terrain in order to follow animals, hunt or search for minerals.
- (4) The example of how the stonemason’s craft co-constructs their body in the course of building a great Mediaeval cathedral.

In this multi-period, multi-regional and multi-disciplinary session, we encourage profound new reflections creating a deeper understanding of embodiment and lived bodies.

CONTRIBUTION ABSTRACTS

1856. HOLDING THEIR BREATH. UNDERSTANDING UNDERWATER EXPERIENCES OF ANCIENT DIVERS.

Contribution format: Oral  
Contribution authors: Emilio Rodríguez-Álvarez (Universidad de Salamanca)

Diving physiology, especially that of competitive apneists, is a well-researched topic in medical science, with extensive analyses on the different stresses, both mental and physical, that humans must endure when confronting the depths of the ocean on a single breath. While free-diving for food gathering and even naval warfare was a common practice in the ancient world, the lack of familiarity by ancient and modern authors about the responses and risks that diving triggers on human bodies has caused a misinterpretation of the scarce written sources that have survived. While ancient authors did not comprehend the physiological responses the sailors and fishermen are trying to describe to them, modern scholars have often addressed these confusing descriptions as sort of a fictional account or bravado of these informants describing their experiences underwater. No scientific value has been traditionally given to these narratives. This work addresses these problems through the application of a new research paradigm, free-diving ecology, and demonstrates that a careful, structured analysis of these literary sources can prove them to be, despite their limitations, a very accurate reflection of the physiological processes ancient divers endured. Furthermore, the cross-cultural comparison with both artifacts and human remains around the globe provides these written records with a feedback rooted on material evidence that permits to extrapolate the conclusions of this study to other regions of the planet, showing how human bodies have adapted and changed through their constant interactions with the underwater world.

2522. “THOUSANDS HAVE LIVED WITHOUT LOVE, NOT ONE WITHOUT WATER” (W.H. AUDEN) – SWIMMING, DIVING AND THERMAL SPRINGS IN THE EUROPEAN NEOLITHIC

Contribution format: Oral  
Contribution authors: John Chapman (Durham University)

Our very first experience in life – inside the womb – is an aqueous experience, so it is not perhaps surprising that children soon developed an empathetic relationship with water and watery environments. Prehistorians tend to explain the obvious and strong relationship between site location and water - whether on coasts, rivers and streams or next to wetland sites or springs – in terms of resources (drinking water, fishing, shell-collecting, hunting water-birds). But there were advantages for personal hygiene, while the bodily pleasures of swimming, especially in warmer seasons, would have led to the development of new embodied skills, which could also occasionally have had life-saving results to avoid drowning. We suggest that swimming skills were as important in differentiating between persons as their skills in potting or woodworking. Strong swimmers were more likely to have developed skills in diving, with positive benefits in retrieving shells for eating or ornament-making (e.g., Spondylus gaederopus). While swimming in the sea and swimming in rivers offered different experiences, a third context – the thermal spring – provided a new and intensively pleasurable kind of swimming. In an exploratory study that seeks to go beyond the anecdotal (e.g., the Palaeolithic cave near Miskolc, Hungary, with thermal springs inside the cave), the distribution of thermal springs in Bulgaria is compared with that of prehistoric tells to study any possible impact of hot springs on settlement location in the Neolithic or Chalcolithic.

172. THE NAUTICC (NORMS AND USES OF TECHNIQUES IN PREHISTORIC COASTAL COMMUNITIES) DATABASE: A TOOL FOR PREHISTORIC MARITIME TECHNIQUES

Contribution format: Oral  
Contribution authors: Giada Pirrone (CReAAH lab Umr 6566 CNRS | Université de Rennes)

The interaction between coastal hunter-gatherer communities and the surrounding environment is mediated through the application of various technical actions. The full spectrum of activities, from those solely related to subsistence to those involving more symbolic and ritual aspects, is organized into distinct tasks that necessitate specialized physical capabilities. This body of knowledge plays a crucial role within these communities and is transmitted from generation to generation via processes of cultural transmission and social learning, which facilitate gradual specialization and refinement in tandem not only with technological evolution but also with the relationship between human bodies and raw materials. The latter is most readily observable in the prehistoric archaeological record, which provides a partial yet precise depiction of the skills developed and deployed



in the dual and liminal context of coastal life. As part of the MSCA doctoral network ArChE, through my doctoral research I will develop a tool to organize and gather data regarding technical systems employed by prehistoric coastal societies: the NAUTICC relational database (NORMS AND USES OF TECHNIQUES IN PREHISTORIC COASTAL COMMUNITIES). Designed to systematically record and organize data from diverse sources, this data-base is organized around the concept of tasks and techniques, facilitating the extrapolation of new archaeological insights into the type of activities carried out in the sites and the social structures of coastal communities. The project analyzes data related to key aspects of Mesolithic life, including hunting, fishing, cooking, dwelling, tool making and symbolic practices. By synthesizing a vast array of data across four geographical areas (Northern Spain, Western France, Southeastern Norway and coastal Latvia), this research provides new perspectives on the norms and practices of prehistoric coastal communities on local scales, as well as patterns of cultural continuity and change across regions.

1634. MISCHIEF FOR IDLE HANDS: DOMETICATION OF HANDS IN THE NEOLITHIC

**Contribution format:** Oral  
**Contribution authors:** Dimitrij Mlekuž Vrhovnik (University of Ljubljana)

Keeping hands occupied has always been a fundamental aspect of human life, shaping both individual experience and social structures. This study examines how Balkan Neolithic people engaged their hands in daily life, exploring the ways manual activity mediated their interactions, work, and self-regulation. Psychoanalysis sees the body as shaped and driven by both desire and drive, constantly negotiating between excess and restraint. Desire reaches outward toward something beyond us, while drive seeks to quell an internal agitation. The hand embodies both: it reaches out as an image of desire, yet also functions as an organ of drive, overflowing with restless excitation. Through the hands, this excess finds form, whether in gestures of reaching, grasping, or compulsive, restless activity. The bodily energy that saturates us is directed through the hands, which serve as both a medium of desire and a technology of drive—creating, transforming, and shaping action. Yet, this raw movement must be cultivated, disciplined, and refined through practices that structure both the self and society. From fidgeting to weaving to handling objects, hands act as a primary site of transformation, channeling internal tension into structured activity. Whether through learned habits, cultural norms, or personal rituals, the body is not merely a passive vessel but an ongoing project of mediation, regulation, and adaptation. Hands are also deeply intertwined with speech and listening, demonstrating how language and embodiment are inseparable. As we listen, our hands often seek movement—doodling, touching objects, or engaging in repetitive gestures—suggesting that processing speech is not purely cognitive but also physical. This study explores how Neolithic manual technologies emerged alongside new social spaces, where interactions became more complex. Various objects served as instruments of mediation, allowing people to be both present and abstracted, engaged and withdrawn, in the evolving fabric of Neolithic society.

928. MOTIONS AS ARTEFACTS AND MATTER AS AN ENDOSPORE: AN ARCHAEOLOGICAL APPROACH TO RESEARCHING LATE-MEDIEVAL GERMAN MARTIAL CULTURE

**Contribution format:** Oral  
**Contribution authors:** Maciej Talaga (University of Warsaw, Faculty ‘Artes Liberales’)

This presentation takes the theoretical lens of ‘becoming’, ‘embodied materiality’, and ‘affordances theory’ to explore the capacity of material relics to preserve past embodied knowledge and reactivate it in the present. Drawing from new materialist philosophy and ecological cognitive science, it explores how they serve as repositories of generative information rather than mere inert traces of the past. Artefacts are reconceptualised as remnants of functional units where objects and living bodies were once tightly intertwined, their forms shaping and being shaped by culturally constructed motions. Thus, tangible artefacts are approached as inseparable from the intangible kinetic artefacts, for which they serve as cenotaphs. Starting from this observation, I then argue that the missing link between the tangible material relics and their corresponding intangible motions is not actually lost forever and can be retrieved, when the researcher’s physical body is added to the equation. As a form of matter, past artefacts resist human manipulation, thus providing constraints which may guide present human practice towards that of the past - or towards the kinetic artefacts. Hence, I propose to see them as endospores rather than cenotaphs. The discussed theory is confronted with a short case study on a swordfighting technique described in a late-medieval German fight book (manuscript 3227a, Germanisches Nationalmuseum). The example demonstrates how a dynamic configuration of material objects, human body, and ephemeral materiality of motion may bridge the gap between historical and present experiences by supplying affordances and steering interaction, thus challenging conventional views of memory, materiality, and historical continuity. By functioning as endospores rather than mere relics, artefacts actively shape present practice, allowing past knowledge to resurface through embodied engagement.

60. ‘TURNING RED’: OCHRE-BASED UNGUENTS AND BODY PAINTING AS A LONG-LASTING PRACTICE OF HUMAN ADAPTATION.

**Contribution format:** Oral  
**Contribution authors:** Simona Todaro (University of Catania)

Ochre is a generic term used by archaeologists to describe earth pigments that are typically red, yellow or brown-coloured. Analyses have highlighted that the difference in colour depends on the elemental composition (haematite, goethite, limonite), and have also clarified that red pigments can derive from haematite as well as from cinnabar or burnt limonite. At Middle Stone Age sites in Africa haematite-ochre was preferred to other types even when its acquisition required travel over long distances. Ethnographic analogy with African tribes, such as the Himba in Namibia, and the contextual associations of archaeological haematite ochre suggest that it was prized for its unique properties as a smell neutralizing and photo-protective agent. Red ochre, mixed with animal fat could be smeared on the body as a second skin, protecting it from sunburn. These properties transformed bodies allowing them to travel through new landscapes and settle in new ecological niches that otherwise would be out of reach. Building on these studies, this paper will focus on Holocene uses of ochre and will argue that modern humans acquired, early on, an experience-based awareness of specific photo-protective and mosquito’s repellent properties of haematite and, through time, exploited them to conquer new environments or to continue living in the same places under different conditions. More specifically, it will argue that the discretionary use of red ochre in the funerary rituals of certain groups might suggest that ochre-based unguents, created by mixing ochre powder with animal fat or butter-milk and kept in purposely made ochre containers, were used during life to improve on nature, in two specific circumstances: habitation in marshy areas of alluvial plain, potentially affected by malaria, and early seafaring.

2362. THE LAND, THE SEA AND THE NEANDERTHAL BODY

**Contribution format:** Oral  
**Contribution authors:** Christina Papoulia (Department of History & Archaeology, University of Crete)

The robust Neanderthal body has been interpreted as a result of biological adaptation to severe climatic stress, and the distinctive Neanderthal nose as an efficient respiratory mechanism in extreme cold weather conditions. Neanderthal bodies have been reconstructed in various means and in diverse ways, from Kupka’s absolute brut to the fully modern Neanderthal in a suit of the Neanderthal Museum, Mettmann. The scientific community and the public engage with the Neanderthals’ lived experience based on their material culture via archaeological narratives that tend to change over time. Recent advances in Neanderthal archaeology allow for a deeper understanding of the skills and techniques related to such a highly innovative species. The embodied performances of Neanderthals’ everyday life involve moving through coastal landscapes, upland regions and snow-covered terrains, but also diving in waterscapes or floating on material containers. This talk deals with Neanderthal technologies, materiality and embodiment, what Mauss called “techniques of the body”, through the study of activities such as knapping, hunting, swimming, diving, body ornamenting, dancing or burying a loved one.

2122. BECOMING A FARMER. MOBILE BODIES, EMBODIED KNOWLEDGE AND THE INITIAL DISPERSALS OF AGRICULTURE IN THE AEGEAN (7000-6200 BC)

**Contribution format:** Oral  
**Contribution authors:** Peter Tomkins (University of Catania)

How did farming first reach Europe? While archaeology long ago narrowed priority to the regions of Europe that border the Aegean Sea, the precise nature of the transfer and the agencies involved continues to be debated. A consensus still (just about) prevails that farming was brought by groups of farmers, migrating into regions of southeast Europe from homelands in southwest. However, there is growing uncertainty about the cogency of the demic diffusion model – at least as conventionally formulated – as an explanation of the evidence in all its complexity. This paper suggests that progress from this impasse depends less on new evidence emerging, welcome though this would be, and more on addressing a lacuna in our theorisation of agricultural knowledge and practice, specifically how it was formed, re-formulated and transmitted among the societies of the Early Holocene Aegean. It suggests that the demic diffusion model under-theorises this (1) because being a farmer is viewed as a normal part of ‘early farming culture’, where culture was understood, at least originally, as closed, normative and fixed, with stable mechanisms for its (internal) transmission; and (2) because the agents of dispersal are already farmers and so the question of how they became so seems irrelevant. Taking an explicitly embodied perspective, this paper considers what it might have meant to become a farmer in the landscapes of the Aegean. How, by whom and from whom, might agriculture have been initially learnt in the mobile, connected societies of the early Holocene Aegean? How and in what contexts might farming - as a nexus of embodied knowledge and practice – have been reformulated? The paper explores these questions using case studies drawn from the first millennium of farming in the Aegean.



1446. WHAT BODIES CAN DO. INTERWEAVING BODIES AND ARCHITECTURE IN THE PRE-POTTERY NEOLITHIC AND BEYOND

Contribution format: Oral  
Contribution authors: Alexander Gramsch (Römisch-Germanische Kommission)

The Levantine Pre-Pottery Neolithic (PPN) is well-known for human remains placed in certain areas of domestic architecture and for the elaborate treatment of bodies and bodily remains. I want to use these data as a starting-point to consider possibilities how architecture and bodies deliberately get entangled through a wide array of body-centred transformative practices. My aim is to combine a phenomenological understanding of the human body as a ‘fait social’ sensu Durkheim and Merleau-Ponty, shaping the world by experiencing it, with an understanding of the interweaving of body and architecture as a process. Many peri- and post-mortem practices result in a separation of the perishable and the imperishable, of moist, soft, decaying biomass and dry, hard bones. Evidence for the dismemberment of bodies and excarnation is scarce for the PPN, but available in later Neolithic contexts in Europe. Whatever method or process was chosen in the PPN, it resulted in dry bones that were easy to handle and to transform further, e.g. using plaster. This process of ‘ossification’ or even ‘petrification’ of human remains runs parallel to the process of transformation of social relationships and social memories. Moreover, this petrification process is linked to another petrification process, i.e. the planning, the construction, and the maintenance of domestic architecture. Recent studies point to the use of lime plaster produced explicitly for the application both in PPN architecture including the recurring renewal of walls and floors as well as in mortuary rituals (skull modelling). In my contribution I try to disentangle these processes, the materiality involved, and the question how the constant interaction of body and architecture in this process shaped both mutually.

415. ROCK ART AND ARCHAEOLOGY OF BODILY MOVEMENT

Contribution format: Oral  
Contribution authors: Manuel Santos-Estévez – Regina Zaghi-Lara (Incipit-CSIC, XSCAPE project)

This study is part of the project “XSCAPE: Material Minds”, in which we want to understand the interactions between the mind, objects, and the world. In line with this question, this work proposes to analyse how rock art sites condition human behaviour, paying special attention to posture and body movement. This study takes a historical approach; it analyses changes throughout prehistory and whether they relate to social and cultural transformations. For instance, in Paleolithic, it is sometimes necessary to adopt very different body postures, lie on the ground, bend down... to be able to observe the panels. However, postures and body movements are becoming more constraining as we move forward in time. In European rock art from the Neolithic period, visitors could position themselves around the panel due to these panels having several viewpoints, and they tend to move around. However, in Bronze and Iron Age sites, groups of people had to be placed in front of the panel because fewer viewpoints were available. These differences could be linked to increased movement control and body position in later societies. The configuration of the rock sites may be related to strategies for controlling human behaviour by restricting their movements and body postures. To define the relationship between body and rock art, we conducted experiments utilizing movement-tracking technologies to document body positions and movements within sites, offering insights into human-environment interactions through spatial navigation. We chose two sites for the experiment: one Neolithic site featuring geometric designs on irregular, horizontal, and convex surfaces and one Iron Age site showcasing quadruped motifs on steep surfaces. By quantifying bodily behaviors in these environments, we gain insights into how the act of viewing art was not just a visual experience but a deeply embodied one, shaped by the constraints and affordances of the surrounding landscape.

1685. CAVES ACROSS BODIES OF PAST AND PRESENT

Contribution format: Oral  
Contribution authors: Stella Katsarou (Ephorate of Palaeoanthropology-Speleology, Ministry of Culture, Athens)

Caves in the Aegean and everywhere are more than ancient ‘sites’; they are places, spaces, and landscapes where ancient communities constructed meanings. Humans did not just ‘use’ caves; they traveled to them on land and sea, climbed to their entrances, crawled inside their crevices, touched their stalagmites, got wet in their drip water, and struggled to navigate their darkness. Caves created expectations and promises for shelter and resources, offered transcendence for communities to place their deceased, inspired awe, or became places people escaped with fear. In this paper, I will draw on archaeological research in the Aegean to explore the range of corporeal interaction of prehistoric humans with cave spaces. This exploration takes on two perspectives. First, it seeks insights into social knowledge, ritual expertise, and long-lasting traditions, including mythological narratives, that emerged and formed within the prehistoric communities of the Aegean as direct responses to the physical restrictions and challenges posed by specific cave spaces, particularities, and locations. Second, it emphasizes the role of modern archaeologists, who, through their own embodied experiences in caves, become the empirical

and subjective mediators of prehistoric bodies and their dynamic engagements with caves.

1422. ECHOES OF CONFLICT: INVESTIGATING TRAUMA AND SURVIVAL IN MEDIEVAL MANASTIRIŠTE

Contribution format: Oral  
Contribution authors: Nikolina Manojlovic (Zavičajni muzej Župe Aleksandrovac/Homeland museum of Župa Aleksandrovac) – Dušan Kojić (Zavičajni muzej Gradiška/Homeland museum Gradiška) – Dragana Vulović (Arheološki institut Beograd/Institute of Archaeology Belgrade)

The Manastirište site, located on the right bank of the Lubina River in the village of Kijevci, in the territory of Gradiška, Republika Srpska, offers a unique opportunity to investigate the physical and cultural impact on bodies through time. Archaeological excavations, which began in 2004, have revealed a Roman agricultural estate, a medieval church with a cemetery, two wooden churches, and an unexplored Object III. The investigation of the medieval cemetery, which spans over the Roman objects, provides insight into the evolution of burial practices from the 12th to the late medieval period. During the most recent research campaign in 2024, two closely positioned graves were examined. The individuals buried in them show distinct signs of trauma: a fatal head injury inflicted by a sharp object in one individual and a massive skull injury caused by a blunt object in the other, who survived. These studies offer an opportunity to analyze the impact of physical injuries on bodies, and the adaptation of surviving individuals to their environment and society. We will attempt to understand how changes in the physical state of the body impact the quality of life in the context of the Middle Ages in the Balkans, with an emphasis on how human bodies cope/interact with trauma. How does the elasticity of life energy vary from one individual to another?

47 BIOARCHAEOLOGY OF CHILDHOOD: NEW PERSPECTIVES ON CHILDREN IN EUROPEAN PREHISTORY

Session theme: 5. Finding the way! Archaeological sciences and opening new research perspectives  
Session format: Regular session  
Session keywords: bioarchaeology of childhood, children, health and diet, growth and development, puberty, social status  
Session organisers: Mina Amzirkov (Department of Archaeology, Faculty of Philosophy, University of Belgrade) – Ana Herrero-Corral (Austrian Archaeological Institute, Austrian Academy of Sciences) – Marija Krečković Gavrilović – Marija Marin – Jelena Marković (Department of Archaeology, Faculty of Philosophy, University of Belgrade)

SESSION ABSTRACT

Children in the archaeological record have been discussed for decades, still, their roles and contributions were often underrepresented in research, possibly due to perception of their minor influence on society or due to limitations in anthropological methods. In recent years, with significant advancements in analytical techniques, particularly those applied to non-adult skeletal remains the archaeology of childhood has emerged as an important field for understanding past populations. Despite existing limitations, with these advances, and the application of scientific methods in archaeological research, it has become possible to reconstruct the life histories of children. This has opened up new avenues for studying children’s health and diet, growth, and developmental stages such as puberty. Further, observing these factors within the archeological context allowed us to better understand their social roles and how prehistoric communities interacted with their children, seeing them as both future adults and as the future of the community. This session aims to present new perspectives on childhood during European prehistory by welcoming papers dealing with the bioarchaeology of childhood using different bioarchaeological and archaeological methods such as dietary and weaning stable isotope analysis, also strontium and oxygen isotope analysis, genetic analysis, radiological imaging, paleopathology, dental analysis, tooth peptide analysis, highlighting how the implementation of scientific methods can be used to reconstruct the lives of these tiny but significant members of past societies.

CONTRIBUTION ABSTRACTS

978. GENDER AND SEX IN CHILDREN’S FUNERARY RITUAL DURING THE BRONZE AGE: MAROS CULTURE CEMETERY IN MOKRI. (2100-1800 BC)

Contribution format: Oral  
Contribution authors: Mina Amzirkov – Marko Porčić (Department of Archaeology, Faculty of Philosophy, University of Belgrade) – Katharina Rebay-Salisbury (Department of Prehistoric and



Historical Archaeology, University of Vienna | Austrian Archaeological Institute, Austrian Academy of Sciences) – Fabian Kanz (Unit of Forensic Anthropology, Medical University of Vienna) – Michael Wolf (Department of Analytical Chemistry, University of Vienna) – Lidija Milašinović (National Museum Kikinda) – Sofija Stefanović (Department of Archaeology, Faculty of Philosophy, University of Belgrade)

The beginning of the Bronze Age in Europe brought many changes and new social structures, with societies becoming stratified and more complex. Emergence of social stratification during the Bronze Age of Europe influenced the human perspective on assets and marriage and redefined the relationship between men and women. These effects are notable in differences in burial norms between adult male and female individuals with estimated sex, based on their skeletal remains, buried at the Maros culture necropolis in Mokrin. As well as by observing other aspects of their funerary ritual such as orientation, burial shape and depth, and the difference in grave goods, that can be characterized as typically male or female. Still, the question arises whether these changes influenced the burials of boys and girls of all ages. To reconstruct the influence of biological sex and age on the funerary ritual of children, we have determined biological sex using enamel peptide analysis on 57 skeletal remains of children with available teeth samples aged between 2-18/22 years. The results have shown that almost all of the analyzed boys and girls follow the same funerary ritual as adults. They were buried in shallower burial pits, in a north-south/south-north orientation, with the same variation in burial pit shape, where the boys followed the same ritual as adult men and girls for adult women. Grave goods in children’s burials follow the same categorization as in the burials of adults. Based on these results, it is noticeable that the biological sex of children older than 2 years, played a significant role in their gender representation.

**309. IS IT A BOY OR A GIRL? PROTEOMIC AND OSTEOLOGICAL SEX ESTIMATIONS OF NORTHERN IBERIAN BRONZE AND IRON AGE INFANTS**

**Contribution format:** Oral  
**Contribution authors:** Javier Salcines-Montaña – Teresa Fernández-Crespo (University of Valladolid)

Sex estimation is fundamental for the reconstruction of human identity and experience, correlating with a range of biocultural behaviors and population dynamics. On skeletal remains, sex has routinely been approached by morphometrical features arising from post-pubertal sexual dimorphism. A maximum accuracy of ~95% is possible for adult individuals when both the skull and the coxal bone are well preserved. However, for non-adult individuals –particularly infants– conventional osteological sex estimations are challenging because sexually-dimorphic markers are still to be developed and, therefore, they are rarely undertaken and/or considered. Here, we present matching proteomic and osteological sex estimations of 78 Late Bronze and Iron Age infant individuals aged from 30 gestational weeks to 5 years old that were buried in domestic contexts of La Hoya settlement (Rioja Alavesa region, present-day Basque Country). The aim of the research is double: 1) to evaluate the diagnostic capability of dimorphic enamel peptide analysis on developing deciduous teeth and 2) to assess relative reliability of often-used osteological methods in comparison to peptide sex data. Results show that it is possible to confidently determine sex through peptide analysis in the majority of cases, although some samples failed due to insufficient mineralization of tooth enamel. Agreement between peptide and osteological methods is often limited and the main causes of inconsistency are evaluated. We conclude that proteomics constitutes an important complement or alternative to osteological sex estimation in infants, particularly when destructive analyses, like DNA, are not a possibility.

**282. WHEN THE TOOTH FAIRY DOESN’T VISIT: DENTAL PATHOLOGY AND DENTAL ENAMEL PEPTIDE ANALYSIS IN CHILDREN FROM THE HUNGARIAN BARBARICUM**

**Contribution format:** Oral  
**Contribution authors:** Cristina Tica (Globe Institute, University of Copenhagen) – Marine Morvan (Globe Institute, University of Copenhagen | Novo Nordisk Foundation Center for Protein Research, Proteomics Program, University of Copenhagen) – Csilla Líbor – László Schilling (New Archaeological Collection, Hungarian National Museum) – Sándor Évinger (Department of Anthropology, Hungarian Natural History Museum) – Jesper Olsen (Novo Nordisk Foundation Center for Protein Research, Proteomics Program, University of Copenhagen) – Enrico Cappellini (Globe Institute, University of Copenhagen)

Childhood paleopathology, while a challenging and underrepresented area of archaeological research, remains a vital and highly informative subfield of bioarchaeology. By combining methods from paleoproteomics and biological anthropology, this study shifts the lens of interrogation from the Roman Empire to the forgotten ‘barbarians’ outside its borders, to explore any sex difference in childhood health in communities east of the Roman limes. Non-adult individuals with age-at-death of ~1-12 years-old from 10 sites on the Great Hungarian Plain have been

selected for macroscopic assessment of oral pathologies and childhood stress indicators: dental calculus, dental caries, and linear enamel hypoplasia (LEH) have been identified based on well-established criteria and scored as present or absent on both deciduous and permanent teeth. LEH has been used as a non-specific indicator of physiological stress in past populations, and extensively used in bioarchaeology to reconstruct general health status and population trends. Because we are working with archaeological skeletal remains that have not reached puberty, osteological sex estimations based on morphological techniques are notoriously unreliable and problematic. Instead, we used a streamlined mass spectrometry-based workflow for the estimation of sex using targeted amelogenin (AMELX/AMELY) peptides from dental enamel by employing a minimally invasive sampling strategy via acid etching and high-resolution liquid chromatography coupled to mass spectrometry using parallel reaction monitoring assay. The current investigation focuses on teeth for several reasons. First, they are the most highly mineralized body structures and the better preserved skeletal remains for the examined collections. Additionally, as enamel is produced only once, during the period of crown formation, spanning prenatal through late childhood periods of development, it provides invaluable insights into past childhood experiences. Dental enamel forms incrementally and does not remodel or repair, retaining a record of the developmental process, including both physiological growth changes and alterations due to abnormal stress events.

**1467. INFANT FEEDING PRACTICES IN ANCIENT ROME: A SEX-BASED EXAMINATION OF SUPPLEMENTATION, WEANING, AND LEAD CONSUMPTION**

**Contribution format:** Oral  
**Contribution authors:** Leigh Oldershaw (Ohio State University) – Federico Lugli (University of Bologna | University of Modena and Reggio Emilia) – Alessandra Sperduti (Museum of Civilizations) – Alfredo Coppa (Sapienza University of Rome) – Debbie Guatelli-Steinberg (The Ohio State University) – Luca Bondioli (University of Padua | University of Bologna) – RobertAnczkiewicz (Polish Academy of Sciences) – Alessia Nava (Sapienza University of Rome)

Recent studies of Roman infant feeding practices have used Laser Ablation-Inductively Coupled Plasma-Mass Spectrometry (LA-ICP-MS) time-resolved profiles (Sr/Ca, Ba/Ca, Pb) to reconstruct individual infant feeding timelines. Coupling elemental profiles with paleoproteomic studies of the sex-related isoforms of amelogenin provides an unprecedented opportunity to further explore sex-based differences in infant feeding practices. Here we use histologically-guided biogeochemical analyses to examine sex-based differences in the use of supplementary non-human milks, age at the onset of weaning (Sr/Ca and Ba/Ca), and variations in lead concentration in 52 molars from 48 individuals of amelogenin-derived known sex from across 1st-5th century CE Roman Italy. Results show: 1) a variability in Roman infant feeding practices, 2) the use of supplementary non-human milks prior to six months of age, 3) an increase in Pb concentration with the onset of weaning, and 4) that no sex-based differences existed within our sample. This is significant given that recent isotopic studies have provided limited evidence of sex-based differences in the diets of Roman children as young as 4.5 years of age, as well as sex-based variation in weaning timing. These results significantly broaden our understanding of sex-based variation in early infant feeding practices, allowing for a clearer understanding of the role that biology and culture played in shaping the infant feeding process in ancient Rome.

**1003. FROM CHILDHOOD AND BEYOND — MULTI-ISOTOPIC ANALYSIS OF HUMAN REMAINS FROM TWO NEOLITHIC SITES IN NORTHEASTERN HUNGARY**

**Contribution format:** Oral  
**Contribution authors:** Eniko Somogyvári-Lajtár (Institute of Archaeological Sciences, Eötvös Loránd University | Institute for Geological and Geochemical Research, HUN-REN RCAES) – Kitti Köhler (HNMPCC, Hungarian Natural History Museum, Department of Anthropology) – Alexandra Anders (Institute of Archaeological Sciences, Eötvös Loránd University)

For this research, we have chosen dental material from the burials of two Neolithic (5500-4500 BCE) sites around Polgár (Polgár-Ferenci-hát, Polgár-Csőszhalom), to get an insight into the childhood diet and thus the lifestyle of the deceased in childhood and those who lived to adulthood. Polgár-Ferenci-hát is one of the largest sites in the Middle Neolithic, and Polgár-Csőszhalom is an iconic site of the Late Neolithic period in the Carpathian Basin, Hungary. In both sites, the graves were located in the vicinity of the houses. Such a project has not been done before in the field of Hungarian prehistoric research. From Polgár-Ferenci-hát we analysed 29 teeth from children and 25 teeth from adults. From Polgár-Csőszhalom we examined 29 teeth from children and 79 teeth from adults. We have taken one tooth sample from children (mainly M1, or one of the deciduous teeth). In the case of adults, we have chosen two samples (M1, M2) to study different stages of childhood. The research questions were: (1) Are there differences in childhood eating habits between those who died young and those who survived to adulthood? (2) Are there differences in the breastmilk feeding habits between the two groups mentioned above? (3) How does the weaning process compare between children and adults? (4) Is there a gender difference? (5) How



do results from the two sites over 1000 years compare in terms of changes over time and space? We excavated and measured tooth collagen and hydroxyapatite portions of the samples at the Archaeoisotope Laboratory of the Institute of Geology and Geochemistry of the HUN-REN Centre for Astronomy and Earth Sciences. We analysed stable carbon, nitrogen, and oxygen isotope ratios to reconstruct breastfeeding signals, the weaning process, and dietary habits.

1887. INFANT DIET OF GIRLS AND BOYS IN THE BRONZE AGE MOKRIN NECROPOLIS (2100-1800 BC)

**Contribution format:** Oral  
**Contribution authors:** Jelena Markovic (Laboratory for Bioarchaeology, Faculty of Philosophy, University of Belgrade) – Elissavet Ganiatsou – Christina Papageorgopoulou (Laboratory of Physical Anthropology, Democritus University of Thrace) – Sofija Stefanović (Laboratory for Bioarchaeology, Faculty of Philosophy, University of Belgrade)

The Bronze Age was a period of major cultural and social transformation, marked by pronounced social stratification and defined gender roles. While extensive research has examined how these shifts affected adult men and women, little is known about their impact on children, particularly the age at which gender began to shape children’s lives. Considering that children, especially during the first years of life, have limited input in their dietary choices, the decisions of caregivers about what is socially and culturally acceptable for them to eat can significantly influence their growth, development, and overall health. Since breastfeeding and weaning are heavily culturally reliant, studying these behaviors can provide an important insight into childhood and societal perceptions of gender children’s lives, and how their communities perceive them. Our project investigates breastfeeding and weaning patterns in the Mokrin necropolis (Banat, Serbia, 2100–1800 BC) using incremental dentine analysis. This is a novel technique that reconstructs diet through the isotopic shifts of carbon ( $\delta^{13}\text{C}$ ) and nitrogen ( $\delta^{15}\text{N}$ ) on the sequential layers of dentine with sub-annual precision. We sampled the deciduous or permanent first molar from 50 individuals with determined sex based on the peptide analysis, that correspond to dietary changes from birth through childhood (6-7 years old). Elevated  $\delta^{15}\text{N}$  shows breastfeeding duration, while  $\delta^{13}\text{C}$  shifts indicate the type of weaning foods introduced. With this assay, we aim to assess the duration of breastfeeding and weaning and report potential differences between male and female individuals. This study is the first to examine the influence of gender roles on infant diet at one of the most significant Bronze Age sites in Europe, offering new perspectives on childhood and social organization in prehistoric communities.

1832. WEANING PRACTICES THROUGH GEOCHEMISTRY: COMPARING TECHNIQUES

**Contribution format:** Oral  
**Contribution authors:** Michael Allen Beck De Lotto (Department of Cardiac, Thoracic, Vascular Sciences and Public Health, University of Padua) – Alessia Galbusera (Department of Odontostomatological and Maxillofacial Sciences, Sapienza University) – Alice Paladin (Institute for Mummy Studies, Eurac Research, Bolzano) – Manuel Rigo (Departement of Geosciences, University of Padua) – Szymon Mianowski (Department of Odontostomatological and Maxillofacial Sciences, Sapienza University | Polish Academy of Science, Kraków) – Robert Anczkiewicz (Polish Academy of Science, Kraków) – Luca Bondioli (Department of Cultural Heritage, University of Padua | Polish Academy of Science, Kraków) – Alessia Nava (Department of Odontostomatological and Maxillofacial Sciences, Sapienza University)

Reconstructing weaning practices in ancient populations is crucial for understanding nutritional strategies and infant care. However, the precise identification of the transition from breastfeeding to solid foods remains a methodological challenge. This study compares two different approaches applied to odontoskeletal remains from the Picene necropolises of Matelica (8th-6th century BCE, central Italy): bulk  $\delta^{15}\text{N}$  isotopic analysis of 44 individuals elaborated through the WARN model (Weaning Age Reconstruction with Nitrogen isotopes) and histology drive. geochemistry of dental enamel by LA-ICP-MS (Laser Ablation Inductively Coupled Plasma Mass Spectrometry). The WARN analysis, performed on 44 non-adult individuals, was based on an approximate Bayesian computational model proposed in 2013 by Tsutaya & Yoneda. The results indicate an onset of weaning at approximately 3.6 months ( $t_1 = 0.3$  years) and a complete transition to solid foods at 24 months ( $t_2 = 2.0$  years). The nitrogen enrichment value (2.9‰) and the weaning diet  $\delta^{15}\text{N}$  (8.5‰) suggest a post-weaning diet rich in animal proteins or other nitrogen-enriched foods. In parallel, five thin sections of deciduous molars from five different individuals were analysed for Trace Elements (TE) concentration variation with particular attention to the key markers of weaning (Sr and Ba). An increase in Ba/Ca and Sr/Ca ratios between 100 and 150 days (3-5 months) suggests an early introduction of solid foods. The comparison between WARN model and dental geochemistry shows good agreement in the timing of weaning initiation, while highlighting potential variability in the full transition to solid foods. The integration of these two approaches provides a more comprehensive understanding of infant

feeding strategies in past societies.

516. THE IMPACT OF BREASTMILK CONSUMPTION IN THE FORMATION OF DENTAL ENAMEL HYPOPLASIA: A HISTOMORPHOLOGICAL AND STABLE ISOTOPE APPROACH

**Contribution format:** Oral  
**Contribution authors:** Elissavet Ganiatsou – Panagiota Bantavanou – Christina Papageorgopoulou (Laboratory of Biological Anthropology, Democritus University of Thrace)

Dental Enamel Hypoplasia (DEH) is a pathological marker caused by insufficient secretion of mineral and organic substances during enamel formation, as a result of physiological and metabolic stress during infancy. DEH is frequently associated with infections and malnutrition, particularly during the weaning process. Despite extensive research, the precise aetiology of DEH remains partly understood. This study explores the relationship between breastmilk consumption, weaning duration, and DEH formation as critical factors influencing infant growth and development. To investigate this, 26 individuals from ancient Thessaloniki, primarily dating to the Roman period (168 BC–324 AD), were analyzed. Histological sections of permanent canines were prepared to assess the severity and age-at-formation of DEH microscopically. Stable isotope analyses of nitrogen and carbon, combined with Bayesian mixing models, were performed on first permanent molars to estimate weaning duration and the proportion of breastmilk in the diet. The results demonstrate that individuals consuming less than 50% breastmilk during weaning developed multiple DEH defects, with a mean age of formation at 2.59 years. These defects predominantly occurred near or after the estimated mean weaning age of 2 years. This correlation suggests that reduced breastmilk intake and early weaning significantly contribute to the appearance of DEH. These findings have broader implications for understanding DEH in ancient populations, where the condition is particularly prevalent. This assay combines cutting-edge analytical and computational techniques to offer valuable insights into early dietary practices and developmental stress across time. This research is part of the ERC-Consolidator Grant entitled CityLife (Project: 101126337).

724. CHILDHOOD STRESS AND ADULT HEALTH: INVESTIGATING HARRIS LINES AND ENAMEL HYPOPLASIA IN BRONZE AGE POPULATIONS OF NORTHERN BANAT

**Contribution format:** Oral  
**Contribution authors:** Marija Kreckovic Gavrilovic – Sanja Nestorović (University of Belgrade, Faculty of Philosophy. Laboratory for Bioarchaeology) – Tamara Vučinić (Clinical Hospital Zvezdara, Belgrade) – Sofija Stefanović (University of Belgrade, Faculty of Philosophy. Laboratory for Bioarchaeology)

Research on both modern and past populations has demonstrated that adverse early-life conditions can have a significant impact on long-term health and longevity. This perspective was notably advanced by D. Barker and colleagues through the Developmental Origins of Health and Disease (DOHaD) hypothesis, which originally established a correlation between low birth weight and an increased risk of cardiovascular disease in later life. In recent years, scholars have explored the applicability of this hypothesis to archaeological populations with varying degrees of success. This study examines childhood physiological stress in Early and Middle Bronze Age populations from the necropolises of Mokrin and Ostojićevo, Serbia, through the analyses of Harris Lines (HL) in tibiae and enamel hypoplasia (EH) in teeth. These methods were selected because they enable the reconstruction of childhood health status from adult skeletal remains. By utilizing adult skeletons to assess the childhood health status, we are able to expand the usually limited picture provided by subadult skeletons, as well as take into account the survivors of childhood stress, thus circumventing the osteological paradox. Previous research on this skeletal series identified a potential relationship between EH and reduced age at death. To expand upon these findings, we analyzed 113 individuals from both sites using digital X-ray imaging and the Harris Line Tool. This study aims to determine whether the patterns observed with EH can also be detected using another marker of non-specific physiological stress and to assess the similarities and differences between these indicators in reconstructing early-life health experiences. We expect to see the correlation between the shorter lifespan and episodes of growth arrest, as well as a correlation between the presence and frequency of EH and Harris lines.

1878. COMPARING DENTAL SIZE DIFFERENCES BETWEEN BOYS AND GIRLS IN THE BRONZE AGE MOKRIN NECROPOLIS (2100-1800 BC)

**Contribution format:** Oral  
**Contribution authors:** Sofija Stojkov – Nina Dragicevic – Mina Amzirkov Amzirkov – Marija Krečković Gavrilović – Sofija Stefanović (Department of Archaeology, Faculty of Philosophy, University of Belgrade)

Data on the dimensions of the teeth of girls and boys in the Bronze Age are almost non-existent due to the



limitations in determining the sex of children based on their skeletal remains. A unique opportunity to study dental dimorphism among 57 Bronze Age children is provided by the fact that their biological sex was previously determined through peptide analysis. Our analysis included a metrical study of teeth from 24 boys and 33 girls who lived between 2100 and 1800 BC, buried at the Maros culture necropolis in Mokrin (Banat, Serbia). The mesiodistal and buccolingual diameters of permanent maxillary and mandibular molars were measured on an optical digitizing device. For this research, we have also measured the same diameters on all adults with available teeth and estimated sex by standard anthropological analysis. All the results were then compared to calculate the sexual dimorphism of the Bronze Age Maros population buried in Mokrin cemetery. Also, we compared the obtained results between children and adults. This way we gain insight into sexual dimorphism and differences in dimorphism expression in various ages in the Mokrin population, as well as the question of whether sexual dimorphism is noticeable in the teeth of boys and girls/men and women in Maros communities.

**1486. LIVE-BORN AND STILLBORN CHILDREN IN THE MIDDLE BRONZE AGE HORIZON AT THE OSTOJICEVO NECROPOLIS (1650-1500 BCE)**

**Contribution format:** Oral  
**Contribution authors:** Bojan Petrovic (Faculty of Medicine, University of Novi Sad) – Marija Marin – Sofija Stefanović (Faculty of Philosophy, University of Belgrade)

An important question that this study seeks to address is how society during the Middle Bronze Age treated newborn children. To explore this, we analyzed child burials from the Ostojićevo necropolis (1650-1500 BCE) in northern Banat, Serbia, where 103 children, aged up to 7 years, were laid to rest in ceramic vessels. This practice represents a distinctive burial tradition, unparalleled in scale during this period in the region. We investigate whether stillborn children, like their live-born counterparts, were interred within the necropolis and subjected to similar burial practices. In order to ascertain whether the neonates were stillborn or born alive, we conducted an analysis of the neonatal line, followed by an examination of various aspects of mortuary practices. The neonatal line (NNL) is typically the first discernible incremental line on dental enamel, and its presence reflects the infant’s exposure to the physiological stress associated with birth. As such, it serves as a reliable indicator for confirming that the neonate was born alive. The material analyzed consisted of longitudinally ground sections of 15 deciduous maxillary and mandibular incisors and canines from individuals in the perinatal and neonatal stages up to 1 year of age. Potential variations in burial practices between stillborn and live-born individuals were investigated through the analysis of burial orientation, the size and depth of the burial pit, the dimensions, type, and decoration of burial containers, grave offerings, and spatial distribution within the necropolis.

**1482. PALEODEMOGRAPHY OF THE MIDDLE BRONZE AGE (1650-1500 BCE) HORIZON OF THE NECROPOLIS IN OSTOJICEVO**

**Contribution format:** Oral  
**Contribution authors:** Marija Marin – Marko Porčić (Faculty of Philosophy, University of Belgrade) – Bojan Petrović (Faculty of Medicine, University of Novi Sad) – Sofija Stefanović (Faculty of Philosophy, University of Belgrade)

The Middle Bronze Age horizon (1650-1500 BCE) of the necropolis in Ostojićevo (Banat, Serbia) is notable for its large number (103) of child burials in ceramic vessels. The primary question is why children were buried in this unusual manner and what prompted this distinctive and unique (for the period and region) practice. In this presentation, we explore this issue from a paleodemographic perspective. We aim to explore whether the burial site at Ostojićevo functioned as a regular necropolis for the nearby living population during the period between 1650 and 1500 BCE, or whether the burials—particularly child burials in vessels—reflect an unusual event or process. Specifically, we analyze the age distribution of the Ostojićevo Middle Bronze Age mortuary population to determine whether the mortality regime was unusual or consistent with the expected preindustrial pattern of attritional mortality. To achieve this, we examine the ratio of adults to subadults, and we compare the age distribution of children within the subadult population to the corresponding distributions from the preindustrial model life tables. The age structure of subadult individuals interred within the Middle Bronze Age horizon at the Ostojićevo necropolis was reconstructed through the analysis of a sample involvin. 48 individuals. Periapical and orthopantomographic (OPG) dental radiography were employed for the examination of the entire sample. The age of individuals, ranging from 30 weeks in utero to 23 years, was estimated using the London Atlas (AlQahtani 2010). Radiographs deemed diagnostically acceptable for individuals exceeding 20 years of age were further analyzed using the Kvaal method (Kvaal 1995).

**797. CHILDHOOD IN ABORA STONE AGE SETTLEMENT**

**Contribution format:** Poster  
**Contribution authors:** Anna Batraga – Gunita Zariņa (University of Latvia, Faculty of Humanities, Institute of Latvian History)

Children are an important part of prehistoric societies. In many cases, the preservation of archaeological material makes it difficult to accurately describe the role that they played in their respective communities. While many studies have been done on the physical evidence of children, like toys or children-made tools, attention has also been paid to the social status of this age group and whether they even had a different social status relative to adults. One of the ways to try to identify this is through the diet of the individuals. This research will look at the diet of children from the Neolithic settlement of Abora (dated 3484 – 1925 cal BC), Latvia. In order to determine whether there are differences between the diets of children and adults during the Neolithic, stable carbon (d13C) and nitrogen (d15N) isotope analyses were performed on sequential dentin samples from the first permanent molars of six individuals. The age range of 4 to 8 years was chosen for the child diet because the beginning of this period marks the definitive end of weaning for all individuals, while 8 years of age remains within the first molar. Adult isotopic values of the same individuals were obtained from cranial fragments. The isotopic results show that the children had a diet similar to that of the adults. However, it can be seen that children had a slightly higher consumption of freshwater resources than adults, because these resources could have been easily accessible. This tendency does not seem to change between Middle Neolithic and Late Neolithic. This research was prepared within the Latvian Council of Science funded project “The environment and early farming of the Abora Neolithic settlement in lake Lubāns wetlands” (project No. lzp-2022/1-0300).

**48 REFLECTIONS OF VUČEDOL CULTURE: CHRONO-CULTURAL AND INTERDISCIPLINARY PERSPECTIVES**

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** Vučedol culture, Copper Age, third millennium BC  
**Session organisers:** Jacqueline Balen (Archaeological museum in Zagreb) – Elena Leghissa (ZRC SAZU, Institute of Archaeology, Ljubljana) – Ina Miloglav (Faculty of Humanites and Social Sciences, University of Zagreb) – Federico Bernardini (Dipartimento di Studi Umanistici, Università Ca’ Foscari)

**SESSION ABSTRACT**

The Vučedol culture stands as one of the most significant cultural phenomena in southeastern Europe during the third millennium BC. Originating in the region of Eastern Croatia, its influence extended widely across central and southeastern Europe, shaping cultural developments in areas such as present-day Croatia, Slovenia, Serbia, Bosnia and Herzegovina, Montenegro, Albania, Hungary, Austria, Italy, Slovakia, Czech Republic and Romania. The Vučedol phenomenom holds parallels with other pivotal European cultural groups, which collectively played key roles in shaping the prehistoric European landscape. The session aims to gather contributions from both regional and supra-regional studies, offering fresh insights that enrich broader discussions on cultural interaction, technological advancements, and social complexity in prehistoric Europe. We welcome also research that moves beyond regional specifics to examine the wider impact and connections of the Vučedol culture within European prehistory. By positioning Vučedol in the larger narrative of European development, this session seeks to foster interdisciplinary dialogue and highlight the culture’s lasting legacy. Therefore, we welcome contributions that offer: 1) new research findings and discoveries of recently identified Vučedol sites, offering fresh perspectives on this pivotal culture; 2) case studies that focus on settlement patterns, economic activities, cultural contacts and mobility, while also considering the broader European connections and exchanges; 3) interdisciplinary methodologies—ranging from geo-spatial analyses to archaeometric investigations—of diverse material remains, which allow for a more comprehensive reconstruction of the Vučedol way of life and social organization, and its impact on neighbouring regions; 4) ongoing challenges of refining the chronological phasing of the Vučedol culture, with a focus on its development across the Europe; 5) new proposals that enhance our understanding of the culture’s defining characteristics, its social dynamics, and the scope of its influence across south-eastern and central Europe, as well as its connections to the broader European context.



1372. BITS AND PIECES OF VUČEDOL STRATIGRAPHY

**Contribution format:** Oral  
**Contribution authors:** Danijela Roksandic Vukadin (Forensic Science Office, University of Zagreb | Faculty of Humanities and Social Sciences, University of Zagreb) – Slavica Bošnjak (Forensic Science Office, University of Zagreb | Faculty of Humanities and Social Sciences, University of Split) – Mirela Hutinec (Vučedol Culture Museum) – Zdravka Hincak Daris (Forensic Science Office, University of Zagreb | Faculty of Humanities and Social Sciences, University of Zagreb)

The Vučedol site, the largest settlement and the starting point for the spread of Vučedol culture, has been studied for over a hundred years. It spans over 8 ha, where a diverse and complex stratigraphic situation has been documented at several positions (Vineyard Streim, Vineyard Karasović, Cornfield Streim and Gradac) within large and small trenches and test probes. Continuous settlement in prehistory can be traced from the Neolithic (Starčevo culture) through the Bronze and Iron Ages, and there is also evidence from the period from Antiquity and the Late Middle Ages. However, the best-preserved layers are those of the Vučedol culture, which can be traced through its Classic Vučedol phase. The earliest phase of settlement, Vučedol A, has not clearly been recognized and defined, while the most prominent layers belong to the Classic Vučedol B1 and B2 phases. Recent excavations at the Cornfield Streim position identified the final layers of Vučedol culture, classified as the Late Classic Vučedol phase, tentatively named B3. This work will present and summarize not only the established knowledge about the stratigraphy and chronology of the site but also the results of the latest research and discoveries. It will also depict the interrelations of the stratigraphy from previously excavated positions, as well as the connections of Vučedol culture with the Baden, Kostolac, and Somogyvár-Vinkovci cultures.

1380. MASTERING METAL: EVIDENCE OF ENEOLITHIC METALLURGY IN NORTHERN CROATIA

**Contribution format:** Oral  
**Contribution authors:** Slavica Bošnjak (Forensic Science Office, University of Zagreb | Faculty of Humanities and Social Sciences, University of Split) – Danijela Roksandić Vukadin – Zdravka Hincak Daris (Forensic Science Office, University of Zagreb | Faculty of Humanities and Social Sciences, University of Zagreb)

This research examines the emergence and development of copper metallurgy among Eneolithic communities in Northern Croatia, spanning from 4500 to 2500 BC. It covers the final phases of the Sopot culture, and the subsequent Lasinja, Retz-Gajary, Baden, Kostolac and Vučedol cultures. Initial experimentation with copper metallurgy began during the Middle Eneolithic with the Retz-Gajary culture. The Baden culture saw significant technological advancements and increasing production particularly in area of Brodsko Posavlje, with widespread use of arsenical copper, crucibles and one-piece moulds. The Vučedol culture represents the peak of Eneolithic metallurgy in this region. This period is characterized by significant technological advancements, including the use of two-piece moulds, the development of regionally distinctive types of metal objects, the production of standardized metal artefacts, and the emergence of metal hoards. The research analyses archaeological material indicative of metallurgical activity, such as technological waste and metallurgical tools, with a special emphasis on recognizing these materials within their archaeological contexts. This study incorporates new and unpublished evidence to broaden our understanding of copper processing in these communities. By tracing independent technological advancements and their contributions to the development of metallurgical traditions, this study clarifies the origins of copper metallurgy in Northern Croatia and its role in shaping developments leading up to the Bronze Age.

654. LATE COPPER AGE TELL-SETTLEMENTS IN EASTERN CROATIA: A CASE STUDY OF THE PRISUNJAČA SITE

**Contribution format:** Oral  
**Contribution authors:** Ina Miloglav (University of Zagreb, Faculty of Humanities and Social Sciences, Department of Archaeology)

The multi-layered site Prisunjača-Ciganica is one of the most recently excavated Vučedol sites systematically studied in the area of Eastern Croatia. The settlement is located in a prominent, elevated position in the landscape, once surrounded by a stream on three sides. Geophysical surveys suggest that the settlement was fortified by a ditch that enclosed the area, which was the typical settlement pattern throughout the entire Late Copper Age. Based on the archaeological research conducted since 2019 we can clearly distinguish two phases of habitation of the Vučedol population on the site, with 14C dates ranging from 2890–2670 BCE and 2667–2472 BCE. The remains of three house structures, with the evidence of construction repairs, indicate specific settlement dynamics

and organization. Spatial analysis of the pottery assemblages suggests certain active and specific zones within the settlement. Special focus will be on the results from the excavation conducted in 2024, which revealed the remains of the Vučedol house (4.5x8.0 m), with the entire inventory left in the object before abandonment due to fire destruction and preserved in situ. More than 30 vessels were found within the two-room house, along with other stone and bone artefacts which were used in everyday activities.

1660. SUBOCKI GRAD: A NEWLY DISCOVERED VUČEDOL HILLFORT IN WESTERN SLAVONIA

**Contribution format:** Oral  
**Contribution authors:** Ivan Drnić (Archaeological Museum in Zagreb)

Subocki grad, also known as Gradina, is a fortress located in a hilly area northeast of Novska, in western Slavonia, Croatia. During the late Middle Ages, Subocki grad (castrum Zombathel) was held by the Svetački noble family (de Zempche). Systematic archaeological research which began in 2021, primarily focuses on the late medieval period. However, excavations have revealed evidence of much earlier occupation, including by the Vučedol culture. A large pit, accompanied by several postholes, was unearthed along the plateau’s northern edge. Originally used as a storage pit and later for waste disposal, this feature, lay beneath a medieval leveling layer containing artifacts from the Copper, Bronze, and Iron Ages. The remains of the settlement structures of the Vučedol culture and the associated archeological material will be presented and interpreted in this lecture. In addition, this newly discovered site will be placed in its typo-chronological context and its relationship to the surrounding Late Copper Age hillforts will be examined.

672. LATE COPPER AGE DITCHES – A NEW RESEARCH FOCUS FOR LATE COPPER AGE SETTLEMENTS IN CROATIA?

**Contribution format:** Oral  
**Contribution authors:** Miroslav Vukovic (University of Zagreb, Faculty of Humanities and Social Sciences, Department of Archaeology) – Jacqueline Balen (Archeological Museum in Zagreb) – Ina Miloglav (University of Zagreb, Faculty of Humanities and Social Sciences, Department of Archaeology)

In recent years remote sensing techniques have been more widely applied in various archaeological research projects and excavation campaigns in Croatia. For eastern Croatia the focus has been mainly on magnetometry, a geophysical technique, which has proven to be especially successful in prehistoric archaeological contexts. With the arrival of a detailed LiDAR dataset for the whole country we gained another tool that was initially not considered as beneficial for the research of Late Copper Age sites and potential features. The remote sensing data revealed wide ditches surrounding the Late Copper Age settlements whose presence was always assumed but never properly researched. Their imposing size (often more than 20m wide) is problematic from an excavation perspective, but the new remote sensing data can help us with defining these large infrastructural features. LiDAR data has also revealed a new Vučedol culture site in northwestern Croatia with thinner double ditches around the settlement. In light of this new data, we will present our preliminary research of this important but neglected feature and present our research strategy which will help us tackle wider questions about Late Copper Age settlement patterns.

1095. PRELIMINARY RESULTS FROM THE FIELD SURVEY OF A FORTIFIED VUČEDOL SETTLEMENT AT SZILVÁS IN SOUTHEAST TRANSDANUBIA (HUNGARY)

**Contribution format:** Oral  
**Contribution authors:** Martin Furholt – Kata Furholt (Kiel University) – Mira Majdan – Gabor Bertok (Janus Pannonius Museum, Pécs) – Fynn Wilkes – Sebastian Schultrich (Kiel University)

We present the results of the new geophysical and archaeological prospections at the Vučedol fortified settlement Szilvás in Southeast Transdanubia (Baranya County, Hungary). The multiperiodic site was in use from the Late Copper Age to the Migration Period, but most pottery sherds are associated with the Vučedol pottery style. The find of a possible wheel model highlights the role of technological innovations. Through our geomagnetic investigations, we were able to identify a complex enclosure system with five ditches and a large number of pits, suggesting that we deal with a densely built, fortified settlement connected to the Vučedol complex. This complex is to be seen in the context of important social and economic transformations in Southeast and Central Europe in the early 3rd millennium BCE, during the Late Copper and the Early Bronze Ages. However, only a few Vučedol settlements have so far been excavated and published. Thus, the site of Szilvás opens up the possibility of gaining a better understanding about domestic activities, subsistence economy, the layout and structure of the settlement, and its complex spatial organisation.



916. VUČEDOL ‘DESCENDANTS’: SOME NEW EARLY MAKÓ AND NYÍRSÉG SITES FROM EASTERN HUNGARY

Contribution format: Oral  
Contribution authors: Janos Dani (University of Szeged | Déri Museum, Debrecen)

The Vučedol culture is one of the most emblematic and important archaeological cultures of the Carpathian Basin’s Bronze Age, perfectly representing the ’transition’ between the Late Copper Age and the Early Bronze Age in many aspects. More and more is known about the life, burial rite, settlements, distributio. and chronology of the Vučedol, both from sites in eastern Croatia and in southern Hungary. However, the further development and history of the ‘Vučedol tradition’, which fertilized the Bronze Age of the Carpathian Basin and SE-Europe, has always been a priority issue for research. From this point of view, the sites and material culture of the Makó-Kosihy-Čaka culture (2600-2300 BC), which developed partly from Vučedol traditions, and of the subsequent Nyírség culture (2300-2100 BC), which spread in the Upper Tisza region, are of particular importance. The latter’s decorative fine ceramics is strikingly reminiscent of the ‘original’ Vučedol decorative technique, but a real, existing link between the two cultures and areas is at the moment not interpretable, partly because of geographical distance and partly because of the chronological gap. In the last two decades, a few new sites of the Makó-Kosihy-Čaka and Nyírség cultures have been excavated in Eastern Hungary. The presentation aims to present the most important features of these sites, complemented by some interdisciplinary background

1278. LOWER STYRIA AND PREKMURJE REGIONS (NE SLOVENIA) IN THE LATE 4TH TO MID-3RD MILLENIUM BC: TRANSITION TO INTENSIVE OCCUPATION

Contribution format: Oral  
Contribution authors: Bine Kramberger (Institute for the Protection of Cultural Heritage of Slovenia (IPCHS) | Institute of Archaeology, ZRC SAZU)

This paper presents a comprehensive overview of settlement dynamics in Styria and Prekmurje regions (NE Slovenia) from the late 4th to the mid-3rd millennium BC. Over the past 25 years, large-scale infrastructure projects, including the construction of the A1 motorway and the Pragersko bypass, along with research on medieval castle sites, have led to the discovery of numerous prehistoric settlements. These findings provide new insights into settlement patterns during this transitional period. An analysis of material culture, supported in part by radiocarbon dating, indicates that the region was sparsely populated between the late 4th millennium BC and the early 3rd millennium BC. The scarce evidence from this period can be broadly linked to the Boleráz and Vučedol cultural horizons. However, with the emergence of the Somogyvár-Vinkovci culture (mid-3rd millennium BC), the number of settlements increased significantly. From this point until the Early Bronze Age (circa 1600 BC), no major fluctuations in settlement density are observed. The reasons for the sparse occupation during the Boleráz and Vučedol culture horizons remain unclear. The absence of graves from this time has so far prevented ancient DNA and isotopic analyses, limiting insights into demographic changes and mobility patterns. Additionally, paleoenvironmental data remains scarce. However, comparisons with neighbouring regions in the southeastern Alpine area and the western Pannonian Plain suggests that these trends may reflect broader regional developments rather than gaps in archaeological research alone. By placing these findings within a broader European context, this study contributes to ongoing discussions on cultural transitions, settlement patterns, and population dynamics during the 3rd millennium BC.

432. RE-EVALUATING THE VUČEDOL CULTURE IN THE SOUTH-EASTERN ALPINE REGION AND BEYOND

Contribution format: Oral  
Contribution authors: Elena Leghissa (ZRC SAZU, Institute of Archaeology, Ljubljana)

The Vučedol culture is one of the most significant phenomena of the third millennium BC in the south-eastern Alpine region and beyond. Among the most notable sites linked to this culture are the prehistoric pile dwellings of Ljubljansko barje in central Slovenia. Recent archaeological and interdisciplinary research has challenged long-standing interpretations, offering a more sophisticated understanding of the development of the Vučedol culture and its post-Vučedol aspects in this area. Traditionally regarded as a manifestation of the late Vučedol phase (Vučedol C) based on Stojan Dimitrijević’s framework, key findings from the Dežman’s pile dwellings near Ig and the Špica site in Ljubljansko barje—supported by radiocarbon and dendrochronological analyses—present a more nuanced picture. These sites do not merely reflect a late cultural phase but reveal a distinct variant, termed the Ljubljansko barje Variant, which partially overlaps chronologically with the classical Vučedol phase. This research highlights the strategic role of Ljubljansko barje as a dynamic cultural zone engaged in broader networks of exchange and communication within the Vučedol cultural sphere. The presentation will explore the implications of this variant, examining technological and material evidence, cultural interactions, and new chronological insights. By re-examining the dynamics of Vučedol in Slovenia, including sites in central Slovenia and the Vinomer site in Bela Krajina, this study contributes to a broader understanding of the culture’s regional

diversity and European significance.

300. THE SITE OF ZÓK – GRADINA IN BARANYA REGION: SOME ASPECTS OF ECONOMY AND CRAFT PRODUCTION

Contribution format: Poster  
Contribution authors: Jovan Mitrovic (National Museum of Serbia | Faculty of Humanities University of Primorska) – Selena Vitezović (Institute of Archaeology, Belgrade)

The site of Zók – Gradina (Várhegy) is situated in the Baranja (Baranya) region, in the vicinity of modern town of Pécs in Hungary. Large-scale excavations carried out in 1920 by National Museum in Belgrade revealed a rich multi-layered settlement and rich and diverse portable findings. Recent revision of the archaeological material stored in the National Museum of Serbia provided some new information about the prehistoric communities that inhabited this site. The majority of these findings may be attributed to the late phases of the Vučedol culture. Among other findings, relatively rich assemblage of osseous artefacts offered some insight into the economic activities and craft production within the settlement. Collecting and processing red deer antlers was rather important activity, since large amounts of both finished, used tools, and unfinished items and manufacture debris were recovered. Furthermore, many of these objects have manufacturing traces produced by metal weapons, thus providing some indirect evidence on the presence and usage of metal objects by these communities.

1376. COMPUTERIZED 3D FACIAL RECONSTRUCTION OF AN LATE COPPER AGE WOMAN FROM THE SITE VUČEDOL - CORNFIELD STREIM (VUKOVAR, CROATIA)

Contribution format: Poster  
Contribution authors: Danijela Roksandic Vukadin (Forensic Science Office, University of Zagreb | Faculty of Humanities and Social Sciences, University of Zagreb) – Irena Ćirić (Forensic Science Office, University of Zagreb) – Tomislav Staroveški (Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb | Forensic Science Office, University of Zagreb) – Mirela Hutinec (Vučedol Culture Museum) – Slavica Bošnjak (Forensic Science Office, University of Zagreb | Faculty of Humanities and Social Sciences, University of Split) – Zdravka Hincak Daris (Forensic Science Office, University of Zagreb | Faculty of Humanities and Social Sciences, University of Zagreb)

Facial reconstruction is a fast-developing part of forensic sciences and medicine as an identification technique, while in bioarchaeology, with its multidisciplinary approach, brings ancient faces back to life. The basis consists of biological anthropology’s morphological and osteometric analysis methods, followed by methods of reconstruction that assume a relationship between the soft tissue and the underlying skull substrate. The research presented here focused on reconstructing the face soft tissues, resulting in an approximate representation of an individual as she would have appeared during her lifetime. The reconstruction was based on skull number 23, which belonged to a young female. Her remains were found in collective grave pit 6 at the Late Copper Age site of Vučedol — Cornfield Streim. The field excavation of this grave pit, which contained the remains of twenty-one individuals, was conducted during the years 2021 and 2022. The result shows the applicability of digitizing devices and free software for 3D modelling in forensic anthropology. Constant technological development enables new sources and devices in the praxis of forensic anthropology. Thanks to non-contact scanners, it can gather and process information about objects without causing any damage. The reconstruction starts by identifying the skeletal remains, with an emphasis on craniofacial anthropometry. The primary sources of information required for further reconstruction are provided. The process continues with a 3D scan and 3D modelling using the software Blender, MakeHuman, OrtogOnBlender, and a short animation as a final result. It is important to emphasize that the most likely face approximation is possible to achieve in the bioarcheological cases with faces from the past. This research illustrates one of the various methods of facial reconstruction. It examines the advantages and limitations of computer-based techniques for 3D facial reconstructions, emphasizing their significance in biological anthropology and the transfer of cultural knowledge.

50 NEW APPROACHES TO ARCHAEOACOUSTIC STUDIES

Session theme: 5. Finding the way! Archaeological sciences and opening new research perspectives  
Session format: Regular session  
Session keywords: archaeoacoustics, sound, musical instruments, methods, soundscapes  
Session organisers: Joshua Kumbani (University of Tübingen | University of Johannesburg) – Margarita Díaz-Andreu (Institució Catalana de Recerca i Estudis Avançats (ICREA) | Institut d’Arqueologia UB (IAUB)) – Zorana Đorđević (Departament de Història i Arqueologia,



SESSION ABSTRACT

Music and sound played a crucial role in past societies, yet much of this evidence has been lost due to the intangible nature of sound and the fragile nature of many musical instruments. Reconstructing past music and understanding how sound and acoustics were perceived present significant challenges. The absence of sound and music from archaeological reconstructions risks leaving a key dimension of past human experience unexplored. This session is open to researchers investigating the impact of sound in prehistoric and historical contexts, exploring diverse time periods and methodologies. The goal is to encourage dialogue on the practices associated to music and sound in social, ritual, and recreational contexts. We also aim at exchanging knowledge about the methods and perspectives that may be used to approach sound and music in the past. Papers may focus on musical instruments, sound-producing artifacts, the acoustics of built spaces, as well as urban and natural soundscapes. In summary, we seek to promote discussion on various approaches to reconstructing the acoustic experiences of past communities, fostering new perspectives and debates on the theoretical and methodological aspects of archaeo-acoustics. While organised by the Artsoundscapes and the Cult-Aural projects, this is an open call to researchers worldwide, working across different historical periods, who are studying how past communities interacted with sound in various cultural contexts.

CONTRIBUTION ABSTRACTS

726. EXPERIMENTAL APPROACHES TO ARCHAEOLOGICAL MUSICAL INSTRUMENTS ACOUSTICS: BONE CLAPPERS AND BULLROARERS FROM MATJES RIVER SITE, SOUTH AFRICA

**Contribution format:** Oral  
**Contribution authors:** Joshua Kumbani (University of Tübingen | University of Johannesburg)

Experimentation is essential for understanding the acoustics of archaeological musical instruments. This study examined the acoustic properties of two “traditional” South African instruments bullroarers and possible bone clappers recovered from the Later Stone Age Matjes River site in the southern Cape. Bullroarers, known for their aerodynamic sound production, and bone clappers used for percussive rhythm, have historical associations with ritualistic and entertainment practices. Through experimental methods, it is possible to reconstruct and test replicas to analyse their frequency ranges, sound propagation, and potential cultural applications. Replicas of both bullroarers and bone clappers were made and played. The analysis included microscopic analysis and comparative analysis of archaeological artefacts and replicas. The results provided insights into the role of these instruments in indigenous musical traditions and demonstrated the value of experimental archaeology in studying ancient soundscapes. This research enhances our understanding of the sound production of past societies and underscores the significance of reconstructing historical musical practices through empirical testing.

819. NEOLITHIC SHELL TRUMPETS IN CATALONIA: AN ARCHAEOACOUSTICAL APPROACH

**Contribution format:** Oral  
**Contribution authors:** Miquel López Garcia (Departament d’Història i Arqueologia, Universitat de Barcelona) – Margarita Díaz-Andreu (Departament d’Història i Arqueologia, Universitat de Barcelona | Institut d’Arqueologia Universitat de Barcelona (IAUB) | Institució Catalana de Recerca i Estudis Avançats (ICREA))

The use of marine shells from the genus Charonia as lip-vibrated aerophones has been documented in various cultures, both past and present, worldwide, for diverse purposes. Archaeological research indicates that these instruments, commonly known as marine shell trumpets, rank among the oldest aerophones, with evidence dating back to the Magdalenian period. In present-day Catalonia, a remarkable collection of Neolithic shell trumpets has been preserved. However, these instruments have received relatively little scholarly attention compared to examples from neighbouring regions such as the Bay of Cádiz, the Mediterranean islands or the Italian region of Liguria. Notable examples in Catalonia include shell trumpets from the Can Tintorer Mines (Gavà) and Mas d’en Boixos (Pacs del Penedès). The study of the shell trumpets undertaken in the framework of the Artsoundscapes project seeks to document, record, and experiment with those found in Catalonia. The aim of the project is to explore their potential uses, functions, practices, and meanings in the distant past. Given that some specimens still retain their ability to produce sound, we have undertaken several archaeoacoustical analyses that have enhanced our understanding of these instruments and their role within prehistoric communities. In this paper we will discuss the shell trumpets dated to the Middle Neolithic in the V-IV millennium BC. We argue that their appearance marked the emergence of new forms of social organization, shaping novel relationships with the landscape and its economic exploitation. One compelling example is the potential use of these horns as signalling devices within mining activities.

772. MUSIC AND PERFORMERS OF THE PAST: ARCHAEOOMETRY OF MUSICAL INSTRUMENTS MADE FROM BONE AND ASSOCIATED HUMAN REMAINS

**Contribution format:** Oral  
**Contribution authors:** Raquel Jiménez Pasalodos (Universidad de Valladolid) – Olalla López-Costas (Universidad de Santiago de Compostela | Stockholm University) – Susana De Luis Mariño (Museo Arqueológico Nacional)

The materials preserved in the collections of the National Archaeological Museum, though often originating from older excavations, offer a unique opportunity to recover, explore, and reconstruct complex historical narratives and aspects that have long been underexplored in archaeology, such as cultural expression through music. One such example is the musical instruments finds from the site of Castro (Retortillo de Soria, Castilla y León), located on the northern slope of the Sierra de Pela, which forms the watershed between the Duero and Tajo river basins. The only excavations at this site were conducted by the Marquis of Cerralbo between 1908 and 1911, with additional work mentioned by Blas Taracena in 1926, though the results were never published. Like the rest of the Cerralbo Collection, the finds from this site were donated to the National Archaeological Museum. However, both the field survey carried out for this research and a typological study suggest that the chronological attributions proposed by earlier scholars are questionable. An archaeometric analysis of the remains—including a bone string holder, a bone whistle flute, and a human skull associated with the former—could provide new insights into the chronology of the site and reveal additional musically significant details.

1030. COSMOLOGY, SOUND AND FORAGER SOCIETIES. THE ARCHAEOACOUSTIC STUDY OF SITE 26LN211, WHITE RIVER NARROWS (USA) AS A CASE STUDY

**Contribution format:** Oral  
**Contribution authors:** Margarita Díaz-Andreu (Institució Catalana de Recerca i Estudis Avançats (ICREA) | Universitat de Barcelona (UB)) – Lidia Alvarez-Morales – Daniel Benítez Aragón – Diego Moreno Iglesias (Universitat de Barcelona (UB))

What role did sound play in forager societies? Can archaeoacoustic studies help archaeology explore the ontological beliefs associated with how people understood the landscape? These are two key questions we aim to address in this paper. Our discussion is based on the archaeoacoustic study conducted by the ERC Artsoundscapes project at Site 26LN211, a rock writing location in the White River Narrows Archaeological District (WRNAD). This research, carried out in March 2024 as part of an integrated management strategy, sought to deepen our understanding of the placement of rock imagery. We examined the relationship between echoes, directive sound reflections, and the positioning of rock imagery. Our acoustic tests also investigated the sound interactions between two vision quest blinds—small U-shaped enclosures built against the cliff face above Site 26LN211—and the petroglyph site below. Finally, we assessed how distant sounds attenuate between rock-marked shelters and their surroundings. Our findings, presented in tables and graphics, provides insights into the site’s acoustic properties. But how can we go beyond these measurements? The paper concludes with a reflection on the contribution of archaeoacoustics to understanding the belief systems of the people who created the art.

377. THE RESONANCE OF HISTORY: FLUTE INSTRUMENTS IN ANCIENT INDIAN ART RELIEFS

**Contribution format:** Oral  
**Contribution authors:** Divyanshi Gupta (Institute für Indologie und Zentralasienwissenschaften)

The flute holds significant historical and cultural importance in ancient Indian society, serving as a symbol of artistic expression and social prestige. Ancient Indian art reliefs frequently depict flutes in diverse settings, including courtly performances, solo renditions, and orchestral ensembles. These representations not only highlight the prominence of the flute in daily life but also provide valuable insights into the musical knowledge, traditions, and evolving practices of the time. This study examines ancient Indian art reliefs and paintings featuring flutes from the 2nd century BCE to the 7th century CE. The analysis reveals the flute’s widespread acceptance in society, its important role in religious and ceremonial contexts, and the technical advancements in music during this period. Employing iconographic analysis and comparative studies with ancient texts, this paper also explores the stylistic elements of the flute’s portrayal, offering a deeper understanding of its artistic, cultural, and symbolic significance in ancient India.

947. ACOUSTIC MEASUREMENTS IN FINLAND’S HISTORICAL TAFONI

**Contribution format:** Oral  
**Contribution authors:** Jami Pekkanen (University of Helsinki, Cognitive Science) – Riitta Rainio (University of Helsinki, Department of Cultures)



We present an acoustic study of four Finnish tafoni—rock cavities formed by natural weathering processes. The tafoni have smooth, concave walls and inner cavity sizes ranging from approximately 30 cm to 190 cm. Their rare natural combination of smooth reflective surfaces and geometrical symmetries gives rise to distinctive, highly frequency-specific acoustic resonances. Using novel equipment suited to measuring such small spaces, we identified resonances ranging from 126 Hz to 953 Hz, fitting well within the human vocal range. The frequency-specific reverberation extends up to 1.4 seconds, though the duration and strength of resonances vary significantly across the different sites. At its strongest, the phenomenon creates a drone effect in speech and music. The tafoni hold a place in local folklore, associated with beliefs and stories about spirits, gnomes, offerings, refuges, liquor burning and cooking. Oral traditions describe their role as spaces for communication with more-than-human entities and even locations where sages conducted healing rituals, usually involving incantations. Given the accounts referring to auditory aspects and the distinctive acoustics observed, humans in past centuries likely recognized and utilized the tafoni’s unique soundscapes. One of the four sites was further scanned with a mobile phone LiDAR and exhaustively photographed with an aerial drone. The LiDAR and photography were combined to form a geometrically accurate textured 3D model of the tafone and its environment. Together with the high signal-to-noise impulse response estimates such models can be also used for computational analysis of the acoustics, laboratory based behavioral studies, musical performances in virtualized spaces and for immersive public exhibitions. . The new measurement and analysis methodology presented here enables detailed acoustic studies of small structures, and tafoni’s highly distinctive acoustics make them an interesting new target for archaeoacoustical research.

**1865. THE TOWERS ARE LIT, ARE THEY ALSO HEARD? EVALUATING THE SENSORY INTERACTION BETWEEN NURAGHI AND THEIR LANDSCAPE**

**Contribution format:** Oral  
**Contribution authors:** Tim Klingenberg (Institute of Archaeological Studies – Ruhr-University Bochum)

The focus of research into the Nuragic period is the analysis of the eponymous buildings from the Sardinian Bronze Age. These buildings are significant in two respects: first, they characterise a specific chronological period; and second, they are indicative of the surrounding landscape. Previous research has described the Nuragic buildings as bastions with their own territory, leading to the assumption that they functioned as a centre for the ruling population. However, more recent research has developed alternative interpretations of the use of these buildings on the basis of landscape analyses. Driven by these approaches, geographic information systems (GIS) have led to novel approaches and questions about the landscape around the nuraghi themselves. Sensory analyses, in most cases visibility, have also found their way into Sardinian research, although this only partially represents the everyday interactions of the prehistoric population with the landscape. The aim of this study is, to combine the visibility with an acoustical analysis of the landscape surrounding the prehistoric Sardinian tower constructions. The study is conducted on the island of Sant’Antioco, located in the south-west of Sardinia. This functions as an ideal study area because it is a self-contained micro-region and the at least 29 nuraghi present on the island offer a promising basis for studying the landscape in prehistoric times. The paper deals with the perception of the landscape by the Bronze Age population and its possible interactions with the monuments. It employs a multifaceted approach, utilising prospection methods and personal sensory experience in the landscape with geographical information systems.

**76. SOUNDSCAPES OF ERANSHAHR**

**Contribution format:** Oral  
**Contribution authors:** Domiziana Rossi (Cardiff University)

Archaeological evidence alone sometimes fails to fully provide the complete sensory experience of the past, as it often overlooks aspects such as taste, smell, texture of food, and the impact of sound, and other stimuli in ancient environments. Archaeology does, however, provide the tools to construct an environment in which human senses can be conceived. By employing the concept of soundscape, closely associated with sensory archaeology, we can address this gap by using evidence to build the auditory environment of past societies. This research aims to investigate soundscapes in Sasanian cities (224-651 CE). The methodology involves a comprehensive analysis of historical sources, complemented by extrapolating sound-related data from excavations and archaeological investigations. By examining materials, tools, language, faunal, and climatic analysis and archaeo-botanical remains, and then integrating these sources of evidence, this study seeks to provide a more nuanced portrayal of the sensory landscape of Sasanian cities. A 5-minute-long soundscape model will be produced as a case study city. The result will display a taste of the auditory experience and perceptions in an ancient urban setting along with developing an approach to and assessing sensory potential. This research based on the analysis of available data and the application of theoretical frameworks from sensory archaeology has the potential to provide the auditory experiences of Sasanian city dwellers and deeply enhance our understanding of the daily lives across different regions.

**1308. WHISPERS OF THE DIVINE: WIND, SACRED SOUND, AND ORACULAR COMMUNICATION AT DODONA**

**Contribution format:** Oral  
**Contribution authors:** Erica Angliker (Unicamp)

Recent scholarship has devoted considerable attention to the role of music in religious ceremonies at sanctuaries. It is now well established that music was not only a prestigious offering to the gods but also played a crucial role in the structure and efficacy of ritual performances. However, comparatively less attention has been given to the role of natural sounds—such as the murmuring of water, the rustling of wind, and the reverberation of echoes—which could be integrated into ritual practices and serve as mediators between worshippers and the divine. This paper examines the significance of wind-generated sound at the ancient sanctuary of Zeus at Dodona, one of the oldest and most revered oracular sites in Greece. Unlike other sanctuaries characterized by monumental architecture, Dodona functioned as an open-air cultic site centered around a sacred oak tree, believed to serve as an instrument of divine communication. The sound of the wind rustling through the leaves of the sacred tree played a fundamental role in shaping religious experience at the sanctuary, as it was perceived as the voice of Zeus and became a key element in oracular interpretation. By analysing literary sources, archaeological evidence, and comparative studies on ritual acoustics, alongside psychological theories on the acoustic projection of non-vocal sounds, this paper will examine how the rustling of the leaves provided a compelling auditory medium through which worshippers experienced the divine voice. This study argues that the perception of these natural sounds as divine speech was not merely symbolic but rather a crucial mechanism that reinforced the efficacy of its oracles.

**740. A CONVOLUTION METHOD FOR RECONSTRUCTING CLASSICAL SOUNDSCAPES**

**Contribution format:** Oral  
**Contribution authors:** Ella Peltonen – Mikko Mäkitalo (University of Oulu) – Laura Nissin (University of Tampere)

Latin literature describes ancient Roman perceptions of irritating noises, such as barking dogs, bakers working at night, cart traffic, and loud human voices, including commands to draught animals and rowdy customers of taverns. Recent archaeological research has seen an increase in the sensory investigation of ancient living spaces and urban culture, including archaeoacoustic research in the hope of discovering how such sounds influenced urban and domestic spaces. However, the sensory understanding of antiquity is still in its early stages, while different methods to investigate past sensations are being developed. Our work defines a methodological base-line for reconstructing the ancient soundscapes with digital twins. We performed LiDAR scanning in Pompeii and Herculaneum in November 2024; these 3D models form a base for soundscapes within a digital twin. We will model the environments with a convolution method to create accurate archaeoacoustic soundscapes that can be digitally reconstructed with different scenarios. We will use convolution signal processing to convolve sounds and on-site recorded binaural acoustic impulse responses. Thus, we can study the propagation of sounds inside and outside buildings and the changes in the in-building soundscape caused by sounds coming from outside. As Roman case studies, we use the House Wooden Partition III,11 in Herculaneum and the House of Marcus Lucretius IX,3,5 in Pompeii. For evaluation, we will first test the methodology in Turkansaari Open Air Museum (Finland), aiming to digitally reconstruct the acoustic features of different building materials. In our presentation, we report the initial Turkansaari results and our plan on how to extend the methodology into Roman buildings. Our goal is to form a holistic understanding of how sensory encounters influence domestic and urban space. Distinguishing the sensory experiences will lead to a better understanding of how cultural norms, use of space, and physiological necessities influence each other.

**1191. RESONATING ACROSS THE LANDSCAPE: PERCUSSION INSTRUMENTS AS COMMUNICATION DEVICES**

**Contribution format:** Oral  
**Contribution authors:** Zorana Dordevic (Departament de Història i Arqueologia, Universitat de Barcelona) – Joshua Kumbani (University of Tübingen) – Margarita Díaz Andreu (Departament de Història i Arqueologia, Universitat de Barcelona)

Before the innovations of electric communication systems, such as the telegraph and telephone in the 19th century, long-distance communication relied entirely on sound signals produced by sound-producing devices, often also used as musical instruments. This archaeoacoustic study explores how percussion instruments transmitted messages across landscapes, focusing on their acoustic properties and communicative functions. Our investigation follows two main lines of inquiry. First, we analyze the sound range and coverage area of these instruments, considering not only their acoustic properties but also the influence of environmental factors such as weather conditions, topography, and vegetation. Second, we examine how messages were encoded and transmitted. For instance, the manguaré, a pre-Columbian drum set, conveyed complex messages by mimicking the tonal patterns



of spoken language. The rhythmic sequences of semantron and church bells in Europe and gongs in various parts of Asia communicated important announcements, summoning communities, marking religious ceremonies, and issuing warnings across vast distances. By synthesizing data from archaeological, ethnomusicological, and acoustic studies, this research highlights the role of percussion instruments as sophisticated long-distance communication tools in diverse cultural contexts. Our findings contribute to a broader understanding of sound-based communication systems and their interaction with the environment, offering new perspectives on archaeoacoustics and the study of past soundscapes.

1150. RECONSTRUCTING THE 14TH-CENTURY SOUNDSCAPE OF THE GREAT CHAPEL AT THE PALAIS DES PAPES: ARCHAEOACOUSTIC METHODS AND VISITOR ENGAGEMENT

**Contribution format:** Oral  
**Contribution authors:** Julien De Muynke (Eurecat, Technology Center of Catalonia, Barcelona | Sorbonne Université, CNRS, Institut Jean Le Rond d’Alembert) – Stéphanie Peichert (Talkartive S.A.) – Julien Ferrando (Aix-Marseille Université, CNRS, IDEAS, Aix-en-Provence) – Brian F. G. Katz (Sorbonne Université, CNRS, Institut Jean Le Rond d’Alembert)

Archaeoacoustics investigates the soundscapes of the past, including the reconstruction of room acoustics to better understand the sonic environments of historical spaces. Complementing the study of ancient instruments and historical sound sources, the acoustics of built spaces significantly influenced how sounds were perceived by both performers and listeners. This study examines the Great Chapel of the Palais des Papes in Avignon, reconstructing its 14th-century acoustics during its use for Papal Masses. Ray tracing acoustic modeling was employed, integrating historical records on the chapel’s architecture and ornamentation to generate a virtual acoustic model of the space. The results reveal significant differences from its modern-day acoustics. The modeled acoustics were implemented in a real-time auralization system, enabling singers from a choir ensemble specializing in the Ars Nova repertoire—which flourished at the Papal Court—to experience and perform within the reconstructed acoustics. The system, combining individual proximity microphones and static binaural reproduction through semi-open-back headphones, allowed singers to engage with the historical acoustics, supporting a historically informed performance. The resulting dry recordings were used to reconstruct the chapel’s historical soundscapes as they would have been perceived by medieval listeners and were integrated into an interactive audio guide for visitors, offering an immersive and scientifically informed sensory experience of music’s role at the Papal Court.

51 SERIAL CRAFTERS. TOOLS AND METHODS FOR STUDYING ANCIENT SERIALITY AND SERIAL PRODUCTIONS

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** Material culture, Seriality, Serial production, Archaeometry, Artefact studies  
**Session organisers:** Léonard Dumont (Ghent University, Department of Archaeology | Université de Bourgogne, UMR 6298 ARTEHIS) – Fabrice Monna (Université de Bourgogne, UMR 6298 ARTEHIS)

SESSION ABSTRACT

Seriality and serial productions are two very similar concepts. The first one refers to the reproduction of visually identical copies of a model, whereas the other one refers to the mass-production of objects belonging to one or several series. If serial productions existed in virtually every period, seriality first appeared with the development of metallurgy and the invention of molding and casting, enabling the (re)production of series of artifacts with very limited variations. Such objects can be manufactured using different techniques and be used in very different contexts, from everyday tools to prestigious artifacts made of precious materials. They can therefore provide information regarding the organization of production, use and diffusion of material productions in different spheres of ancient societies. However, investigating seriality or serial production is challenging. Because of the high degree of similarity enabled by that type of production and the partial archaeological data available, traditional tools used in material culture studies, such as typological classifications based on stylistic features, often fail to describe these productions and to identify variations in time and space. There is a need for alternative tools and methods to better characterize these artifacts, for example through the identification of production batches, which can be achieved by investigating chemical compositions or production techniques, but also using tools provided by geometric morphometrics, allowing for the quantification of morphological variations within and across series. This session aims at gathering archaeologists and researchers from interrelated fields of research to present and discuss different methods and tools allowing us to progress in the investigation and understanding of these productions.

CONTRIBUTION ABSTRACTS

563. BREAKING THE MOULD - EXAMINING THE LIMITS OF BRONZE AGE SERIAL PRODUCTION VIA CASTING EXPERIMENTS

**Contribution format:** Oral  
**Contribution authors:** Bart Cornelis (Curt-Engelhorn-Zentrum Archäometrie | University of Groningen)

Hoarding objects has been practiced throughout prehistory. However, hoards gain an entirely new character in the (later) Bronze Age as bronze objects are now assigned to the ground in large quantities. This is particularly the case for large axe hoards containing typologically uniform artefacts, which tend to be ascribed to a form of serial production or standardization via the use of casting moulds. Traditionally, serial production is studied using methods based on measurements, weight classes or chemical compositions, which are complicated by statistical approaches using standard deviation or the coefficient of variation (CV). However, finding evidence of standardization in hoards is often challenging as many axe types vary in size, weight or have heterogenous chemical compositions. Moreover, previous studies made statements about serial production based on CV’s in percentages without knowing the accuracy of bronze age production methods. Nevertheless, heterogenous axe hoards may still show signs of serial production since Bronze Age methods may be less accurate than anticipated, suggesting that modern standards may be projected on prehistory. This paper aims to advance the understanding of prehistoric serial production by assessing the minimum variation attainable via casting techniques using experimental archaeology, by serially producing twenty axes from two bivalve mould types, soapstone and ceramic. The experiments explored whether moulds can be reused and whether reuse produces identical objects. This is achieved by studying the casts using measurements, weight and CV’s. Moreover, shape consistency is assessed via 2D geometric morphometrics. The results indicated that moulds are reusable and able to produce standardized objects. However, ceramic moulds are more friable and its output is less uniform with more variation in shape despite being serially produced. The experiments created a potential standard on how to assess serial production in the archaeological record and suggests that serial production can be less uniform than anticipated.

1466. BRONZE AXES, LANDMARKS, OUTLINES, 3D MODELS, AND TRACES. ARE WE ABLE TO IDENTIFY OBJECTS FROM THE SAME CASTING MOULDS?

**Contribution format:** Oral  
**Contribution authors:** Marcin Maciejewski (Institute of Archaeology, Maria Curie-Skłodowska University) – Agata Hałuszko (Institute of Archaeology, Maria Curie-Skłodowska University | Archeolodzy.org Foundation, Świdnica) – Maksym Mackiewicz (Archeolodzy.org Foundation, Świdnica) – Kamil Nowak (Austrian Archaeological Institute, Austrian Academy of Sciences) – Agnieszka Pawlina (Institute of Archaeology, Maria Curie-Skłodowska University)

The Late Bronze Age Rosko hoard (NW Poland) is an unusual find compared to other hoards from this period. While most of them are collections of very different objects (so-called mixed hoards), the Rosko assemblage can be interpreted as the result of a very strict selection. Most are socketed axes of two very similar types. In addition, the dimensions of most of them are very similar too. What is more, the hoard also included casting moulds for the production of socketed axes. These similarities prompt a variety of questions. Especially those related to the organisation of production. For example, what was the number of potential casting moulds used to cast these objects? Also relevant was the question of whether the typologically and metrically similar axes discovered in the Rosko area could have been made using the same moulds. Would subtle typological differences be confirmed by methods focused on morphology and detailed measurements? 71 axes from the Rosko hoard and other contexts, as well as one two-part casting mould, were subjected to 2D and 3D geometric morphometric method analyses, 3D morphometric analyses, and use-wear analyses. The use of such a range of methods has given some answers but also provokes further questions. In addition, compare the various methods focused on morphological and metric data.

1677. THE SERIALKEY PROJECT. EXPERIMENTING NEW METHODS FOR INVESTIGATING THE MANUFACTURE OF EUROPEAN LATE BRONZE AGE (950-800 BC) SERIAL PRODUCTIONS

**Contribution format:** Oral  
**Contribution authors:** Léonard Dumont (Ghent University, Department of Archaeology | Université Bourgogne Europe, UMR 6298 ARTEHIS) – Fabrice Monna (Université Bourgogne Europe, UMR 6298 ARTEHIS)

Bronze Age is characterized by the spread of copper alloys metallurgy in Europe. The outbreak of casting techniques allowed for the development of seriality, that is the production of series of visually identical artefacts.



We observe a striking development of these serial productions at the European scale at the end of the period (ca. 10th-9th centuries BC) thanks to the mass production of reusable bronze moulds. Serially-produced artefacts, by their wide distribution and the existence of moulds pointing to production areas, have potential for a better understanding of the organization of production and of the diffusion of artefacts and techniques over long distances. However, investigating serially produced goods is a challenging task. Because of the important level of standardization, traditional methods such as typo-chronology are ineffective for the identification of meaningful chronological and spatial variations. The SerialKey project aims at developing new methods for identifying production batches within serially produced goods at the end of the European Bronze Age. Instead of studying morphological and ornamental variations, this project seeks out alternative methods to characterize production techniques and evaluate technological variability within series of mass-produced artefacts. The potential offered by systematic  $\mu$ CT scanning is being explored to identify batches based on porosity analysis and geometric morphometrics. We will present the first results and the potential of these methods based on the study of Late Bronze Age socketed axes from Belgium.

**249. SERIES OF ORNAMENTAL RINGS FROM THE ATLANTIC MIDDLE BRONZE AGE: BETWEEN ADORNMENTS, BRONZE STOCKS AND MONEYS?**

**Contribution format:** Oral  
**Contribution authors:** Thibaud Poigt (Université Bordeaux Montaigne, Ausonius) – Marilou Nordez (UMR 6566 CReAAH, Nantes Université)

During the Atlantic Middle Bronze Age (1500-1300 BC), there was a considerable increase in the mass of bronze hoarded, with several tons of metal being removed from the production-consumption-recycling cycle over a period of approximately 150 years. This bronze was primarily utilised for the fabrication of palstaves and ornaments. The majority of palstaves were found in northwestern France, while ornaments were also present in significant numbers. In contrast, on the other side of the Channel, ornaments were predominant, leading to the formation of a so-called ‘Ornament Horizon’. This level of abundance was never again attained subsequently. During this period, ornaments were predominantly found in hoards, i.e. in non-funerary contexts and in non-functional positions. Since the late 19th century, scholars have debated the significance of these substantial quantities of bronze, forgot or abandoned underground all across Europe. This has led to the proposal of a model of adoption of monetary practices, based on the hypothesis of an increasing standardisation of objects, resulting in the emergence of coinage. In this model, adornments, and especially rings, represent the earliest step of the process, where these finished products, roughly similar in shapes and weight, could be used as means of payment, like other kinds of adornments described by ethnographic studies. The present study aims to address the question of the degree of standardisation of Atlantic Middle Bronze Age arm rings. This will be achieved by examining the way they were manufactured and analysing their metrics (length and mass) from a metrological point of view. The study will explore the relationship between mass production, standardisation and monetary functions.

**1843. PRODUCTION OF BRONZE TRILOBATE ARROWHEADS WITH INNER SOCKETS AROUND THE DANUBE BEND**

**Contribution format:** Oral  
**Contribution authors:** Bence Soós (Hungarian National Museum Public Collection Centre, Hungarian National Museum)

Trilobate bronze arrowheads with inner sockets are among the most recognizable elements of the Early Iron Age in the Carpathian Basin. Their occurrence in the region is usually seen as a sign of the influence of the peoples of the steppe on the local cultural milieu. With the selective adoption of various arrowhead types from the east, the local population implemented the production of these efficient weapons, which occur in both funerary and settlement contexts. Trilobate bronze arrowheads are generally seen as an efficient weapon type that is easy to produce in large quantities. However, the places where local production took place, and the mechanisms and choices in the process of crafting these items, have remained largely undetected and left out of discussion. Recently, surveys of Iron Age sites in the wider area of the Danube Bend in northern Hungary yielded large sets of bronze trilobate arrowheads with inner sockets, including semi-finished and defective specimens. Local production of these items is also suggested by bronze moulds found at one of these sites. In my paper, my aim is to examine the process of casting and finishing these arrowheads. In spite of the seemingly homogeneous body of evidence, by examining the shape, dimensions and structural properties of the arrowheads, a detailed picture of their production and the process of casting can be revealed. Additionally, by comparing the sets of arrowheads from various sites, my aim is to study the circulation of these ‘mass-produced’ items around the Danube Bend.

**864. EXPLORING DIE STUDIES OF ROMAN COINS FROM Balsa AND OSSONOBA (ALGARVE, PORTUGAL)**

**Contribution format:** Oral  
**Contribution authors:** Alice Baeta (UNIARQ | University of Lisbon | FCT)

Roman coins represent a remarkable example of serial production in antiquity. The growing demand for currency, particularly during the Roman conquests, exceeded the capacity of Rome’s mint before the end of the Republic. In response, several cities across the Iberian Peninsula started minting their own coinage to sustain local economies, which had transitioned to a monetary system under Roman occupation. Balsa and Ossonoba were among the cities that produced coins, even though briefly and in limited series. By conducting a die study of these issues, it is possible to reconstruct the minting processes, establish a chronological sequence of coin production, and estimate the volume of currency issued. This analysis provides insights into these cities’ monetary supply and their capacity to meet local economic demands. Both series analyzed here are of bronze league coins, the ones from Balsa are classified as ACIP (2510 to 2512) /MIB (170/3 to 6), with three subtypes and 65 units, while Ossonoba’s series are classified as ACIP (2639) /MIB (181/1), with two subtypes and 32 pieces. The methodology used in this project emphasizes the comparative study of high-resolution images of coins, supplemented by 3D scanning techniques. These tools enhance the precision of die identification and enable a more detailed understanding of the minting process.

**1346. COUNT ON ME: EVIDENCE OF SERIAL PRODUCTION OF COPPER ALLOY FURNITURE HINGES FROM THE VESUVIAN AREA**

**Contribution format:** Oral  
**Contribution authors:** Susanna Faas-Bush (University of California, Berkeley)

Apart from rare instances where furniture casts were made during excavation, the particular types of ancient Roman furniture that the copper alloy furniture fittings from Pompeii such as hinges, locks, and decorative elements like studs came from are largely unknown. In the process of conducting dissertation research on the legacy data artifacts and archival material from the Villa della Pisanella, a villa rustica just outside of Pompeii, I am working to investigate any patterns of use between particular types or sizes of fittings and the furniture made with them. Studying the fittings carefully has revealed previously undocumented evidence about their manufacture and use, as well as the cross-craft interaction between metal casting and carpentry. 26 of the 71 copper alloy hinges studied thus far preserve numerals inscribed into the flat faces of hinge arms in open-faced molds while the metal rapidly cooled. These hinges fall into three distinct groups based on form and dimension. In this paper, I will present this dataset and my hypotheses so far about what it reveals about the production batches, commission practices, and furniture construction in the Vesuvian area.

**909. PATTERNS OF SERIAL SCULPTURAL PRODUCTION IN THE MARBLE NETWORKS OF ROMAN THRACE**

**Contribution format:** Oral  
**Contribution authors:** Petya Andreeva (National Archaeological Institute with Museum - Bulgarian Academy of Sciences) – Vasiliki Anevlavi – Walter Prochaska (Austrian Archaeological Institute - Austrian Academy of Sciences)

This paper offers a new perspective on the study of sculptures in Roman Thrace, focusing on the serial production of marble statues and their role in the Romanization process within the region. Situated at the crossroads between East and West, Thrace was pivotal in the interaction between Roman and Eastern artistic influences. The use of local marble resources, controlled by Roman authorities, alongside the integration of the region into broader marble trade networks, played a crucial role in shaping sculptural production. The study adopts a bottom-up approach by examining pre-fabricated statues and replica series to explore marble trade connections, market dynamics, and distribution patterns. It links mass-produced statue types to specific marble sources. Petrographic analysis, chemical analysis (ICP-MS), and isotopic analysis ( $\delta^{18}O$  ‰,  $\delta^{13}C$  ‰) were conducted on the sampled sculptural artifacts, which were then statistically analyzed and compared with a comprehensive database of over 5,700 geological samples from key Mediterranean marble quarries. This framework provides new insights into the intersection of serial sculptural production with art, economy, and cultural transformation in Roman Thrace. By combining archaeological evidence, archaeometric analysis, and historical context, this paper presents a novel approach to understanding the role of mass production and prefabrication of sculptures as a form of artistic expression, contributing to the broader narrative of cultural integration under Roman rule.



2383. METALLURGY OF THE PRZEWORSK CULTURE IN THE AREA OF THE MIDDLE BZURA IN THE ROMAN PERIOD

Contribution format: Poster  
Contribution authors: Wojciech Rutkowski (University of Lodz, Instytute of Archaeology)

The poster entitled “Metallurgy of the Przeworsk culture in the middle Bzura section at the end of the early and late Roman period” will be an incentive for further research on metal products from the Central European Barbaricum area. The concept of metallurgy, including goldsmithing and casting of the Przeworsk culture, has not yet been comprehensively developed. In the Roman period, the specificity of the funeral rite resulted in a significant loss of potential research objects. Elements of the costume burned together with the deceased on the funeral pyre were partially or completely destroyed. In contemporary regions, such as the Bzura river basin, Kujawy, Podlasie and the northern part of Mazovia, archaeological remains are recorded indicating human activity related to local customs, in relation to which the burning of jewellery on the pyre did not always occur. Selecting material from the indicated areas allows for conducting in-depth analyses on a supra-regional scale. In the specialist literature, there are only studies based on the results of individual discoveries. Reinterpretation of these works, with the simultaneous participation of new components, will provide an opportunity for a holistic view of the metallurgy of Barbarian Europe. This scientific poster will be the first attempt to solve the problem of specialized jewelry production in the late early and late Roman period for a selected settlement region

52 SHARED ROADS OF INTERTWINED COMMUNITIES: SHAPING POINTS OF CONTACT AND DIVIDE IN ISLAMICATE SOCIETIES

Session theme: 2. Intertwined Epistemologies: Transcending the Data – Theory Divide  
Session format: Regular session  
Session keywords: Islamic Archaeology , networks, connectivity , frontiers  
Session organisers: Jelena Živkovic (University of Tübingen | Institute of Archaeology, Belgrade) – Jose Carvajal-López (Institute of Heritage Sciences (INCIPIT), Spanish National Research Council (CSIC)) – Alicia Hernandez Robles (University of Granada) – Irina Shingiray (University of Oxford) – David Govantes-Edwards (Universidad de Córdoba)

SESSION ABSTRACT

Development of long-distance maritime and terrestrial networks is a trait closely linked with the rise of Islamic states. From state-driven conquests to the everyday movements of people and goods, these networks facilitated various socio-economic interactions. Islamic Archaeology has shed light on multiple meanings of material culture and landscape diversity involved in these interactions, especially concerning large systems such as the Mediterranean, Indian Ocean, Silk Road, and Hajj. However, other communication axes, including riverine networks, caravan and mountain roads have often been overlooked or have remained the focus of more localised archaeological studies. For many communities, particularly non-Muslims and those living away from urban centres, local roads and rivers enabled the only contact with Islam. This Islamic Archaeology session invites discussions on how different contemporary communities - religious, military, economic, ethnic and others - in Islamicate societies shared available networks to gain economic benefits, conquer, travel, or negotiate their social identities. We invite colleagues to reflect on cases where different political, cultural, and environmental contexts influenced social interactions along routes shaping intercommunal cultural experience on one hand or creating divisions on the other. The latter is particularly common in frontier regions, where routes with communication potentials, such as rivers, were often used as borders that divided (same) communities. Archaeological case studies concerning all types of maritime, riverine and terrestrial networks are welcome, especially those that have been underrepresented in Islamic Archaeology. These studies can focus on or combine material culture, landscape and bio archaeologies as well as written and ethnographic evidence.

CONTRIBUTION ABSTRACTS

2532. RELIGIOUS AND SOCIAL INTERACTIONS IN EARLY MEDIEVAL URBAN MARKETS AND LOCAL EXCHANGE NETWORKS OF SYRIA-PALESTINE

Contribution format: Oral  
Contribution authors: Ian Simpson (Leiden University)

This paper explores the intersection of religious identity and market practices in early medieval Syria-Palestine, focusing on how interreligious interactions were facilitated by local commercial networks and urban marketplaces. In cities like Damascus and Jerusalem, the mingling of Muslim, Christian, and Jewish communities within

bustling urban markets created a space where religious differences and commonalities were negotiated. Yet this relationship between market and religion has been overlooked, especially in less central network nodes. Using archaeological and historical evidence, this paper examines material culture and practices in the exchange of goods, showing how marketplaces and inland local exchange networks acted as sites of religious and social interaction. These spaces and networks did not simply reflect Islamic practices but rather enabled a fluid, liminal zone where different religious and place-based identities were differentiated, maintained, and transformed. Market products, such as handheld lamps, acted as vehicles for negotiating and expressing local identities, with their diverse inscriptions and designs reflecting the influences and interactions between Muslim, Christian, and Jewish communities. I will argue that early medieval urban markets and local exchange networks were not only commercial but also a site for the negotiation of religious and place-based identities, where people engaged in cross-cutting partnerships, influencing both the religious and social fabric of a place.

451. THE MYSTERY OF THE QATARI POTS IN YUGHBI: WHEN THE CONNECTIONS OF THE GULF DIDN’T MATCH

Contribution format: Oral  
Contribution authors: Jose Carvajal Lopez (Incipit, CSIC)

In this paper I analyse the archaeological evidence of Yughbi, the earliest Islamic-period site found in Qatar, to raise some interesting questions about provenance and connectivity in the early Islamic Arabian/Persian Gulf. Yughbi was excavated in 2018 within the context of The Crowded Desert Project. The excavation uncovered three phases of the site during the earliest part of the Islamic period, and in particular its second phase, dated with AMS C14 to the Umayyad period, provided abundant materials. These materials have been studied, and particularly ceramics and stone cooking pots have been subjected to macroscopic, microscopic and compositional analysis with the aim of obtaining clues about their technology of production and provenance. The results, which will be explained in this presentation, draw an interesting map of networks of connectivity of the site of Yughbi in the Umayyad period. The most interesting aspect of this map is that it matches little with what we know of other networks of connectivity in the Gulf in the same period, with the exception of Sohar in Oman. IN this presentation I will try to offer some ideas to explain this mystery.

588. COMMERCE, SEDENTARIZATION AND ISLAMIZATION IN MEDIEVAL HORN OF AFRICA: THE CASE OF AIYANLE (AWBARRE, ETHIOPIA)

Contribution format: Oral  
Contribution authors: Jorge Rouco Collazo (Institute of Heritage Sciences (INCIPIT-CSIC))

The Horn of Africa has long been integrated into networks of contact and long-distance trade due to its geographical position within the broader Indian Ocean system since very early times. The medieval period of the Horn was no exception to these dynamics, playing a key role in the emergence and development of the Islamic sultanates that succeeded one another in this region. In this paper, we introduce the preliminary results of archaeological excavations carried out in 2023 and 2025 at the medieval site of Aiyarle (Awbarre, Ethiopia) within the framework of the ERC project “Statehorn: Pathways to Statehood,” which aims to study, through archaeology, the development of the Islamic sultanates of the Horn of Africa. The excavation has provided significant insights into the domestic spaces of this rural site, which was occupied between the 14th and 16th centuries, coinciding with the duration of the Bar Sa’ad dīn Sultanate. The material culture clearly reflects connections with Indian Ocean long-distance trade, and the site’s abandonment aligns with the collapse of the sultanate and the disruption of this trade network. These new findings will be discussed in relation to other archaeological data from the region, which highlight the importance of the Indian Ocean trade network in the emergence of the sultanates, the Islamization of the population, and the establishment of a widespread network of permanent settlements in a previously nomadic region. This process of sedentarization was interrupted in the 16th century with the collapse of the Bar Sa’ad dīn Sultanate and the disruption of the trade network, leading to the abandonment of most sites.

1565. SILK ROADS AND CART LOADS: ARCHAEOLOGY OF NOMADIC ROUTES AS PLACES OF ISLAMIC CONTACT AND EXCHANGE IN NORTH CASPIAN STEPPE

Contribution format: Oral  
Contribution authors: Irina Shingiray (University of Oxford)

Islamic cultural and trade currents reached the nomadic lands of the Northern Caspian Steppe by the 9th-10th centuries CE. Various branches of the so-called Silk Roads and important overland routes and waterways were meeting and intersecting in that steppe ecoregion; and so were the nomads, the merchants, envoys, and religious missionaries, who came into contact with each other traversing the steppe lands. The regional nomads, who politically controlled the steppe, were the engine and the facilitators of that trade and exchange; thus, they will be in the center of this presentation. This paper will deal with archaeological contexts of nomads and the



meeting points along the steppe roads over the long term. It will use results of several regional surveys and kurgan burial excavations, as well as some stray finds from this territory. It will focus on archaeological contexts of burial practices, of stopping and camping stations, of material exchange including luxury and everyday items, including those of long-distance trade. The goal is to survey and highlight the rich fabric of Islamic exchange culture in the seemingly remote region that was largely devoid of significant urbanization up until the Mongol Period in the 13th century CE, and was mainly the land of pastoral nomads.

212. THE MUSLIM CEMETERY OF KARAKORUM: AN ISLAMIC COMMUNITY AT THE HEART OF THE MONGOL EMPIRE

**Contribution format:** Oral  
**Contribution authors:** Julia Olive Busom – Alice Toso – Susanne Reichert (University of Bonn) – Dunburee Batsukh (Institute of Archaeology, Mongolian Academy of Sciences) – Jan Bemmann (University of Bonn)

Karakorum, the former capital of the Mongol Empire (13th to 14th centuries), was home to a rich fabric of cultures, which included Chinese artisans, Muslim merchants, and captives from different corners of the empire. All of them were part of the intricate system that not only served the Khan’s court but also articulated a multicultural trading hub. During archaeological campaigns carried out between 2023 and 2024, 29 skeletons and 27 graves were excavated as part of a Muslim cemetery located just outside the northern gate of the city. This was the maqbara of the Muslim community of Karakorum, who most likely settled there as part of a forced relocation instigated by the Khan’s effort to populate the newly established city. Historically, little is known about this community beyond the fact that they had their own neighbourhood and engaged in long-distance trade. The presence of a Muslim cemetery, with a diverse paleodemography, further confirms the settlement and growth of this community. Furthermore, certain formal aspects related to the disposition of the graves and the biological characteristics of the individuals buried there suggest possible traces of a Sufi community, whose settlement in Karakorum is already attested by a commemorative stele. Here, we discuss the possible connections and similarities that this community, settled at the edge of the Muslim world, yet at the centre of the Mongol world, shared with the broader Dar al-Islam from a bioarchaeological (including palaeopathological and stable isotope analyses) and funerary perspective. We also examine signs of observed disruption and their possible connection to a process of religious and cultural syncretism or to the community’s minority status.

737. ALMUNIAS AND LIVESTOCK ROADS IN THE UPPER FRONTIER OF AL-ANDALUS

**Contribution format:** Oral  
**Contribution authors:** Jesús Brufal (Universitat Autònoma de Barcelona)

There is an interesting historiographical debate about the concept of almunia in the territories of the former Upper Frontier of al-Andalus. This discussion is based on the term almuniae or almunia, which is clearly visible in 12th-century Latin documents, especially from the 1230s to the 1260s. This word refers to places in Andalusian territory, usually areas suitable for agricultural use, which the conquerors, whether nobles or clergy from the feudal kingdoms and counties, appropriated, gave away or sold. However, there is no record of this term in the scarce Arabic documentation that has been preserved. Archaeology, for its part, does locate and identify small fortified settlements at high altitudes, but without any data to link them to these unique almunias. When looking at the landscape of the old district of Lleida, which borders the kingdom of Aragon and the counties of Ribagorça, Pallars, Urgell and Barcelona, these almunias can easily be linked to communication routes. Of these, a few have been recognised since Roman times, especially those linking the ancient Roman civitas, now integrated into either the Andalusian or county political reality. However, there are many other routes that connect the territory, mainly for moving livestock for grazing. These not only run within the district, but also easily reach the Pyrenean area, which borders the aforementioned counties. We can therefore affirm that, despite the political border, there were intense contacts between the two sides in terms of land use, including trade, but also military confrontations. In this context, the enigmatic type of almunia settlement plays a prominent role, if the textual data does not confuse us.

2526. AT THE CROSSROADS OF WORLDS: THE FORTRESS TYAGIN

**Contribution format:** Oral  
**Contribution authors:** Svitlana Biliaieva (Institute of Archaeology of NAN of Ukraine)

The creation of the fortification system on the southern border of the Grand Duchy of Lithuania by Grand Duke Vitovt at the end of the 14th/beginning of the 15th century was an important factor for bringing diverse cultures and civilizations together—those from the West and East, from Christian and Islamic societies. The Tyagin fortress, located on the Lower Dnieper River was part of that fortification system and it presents a brilliant example of this kind of multicultural phenomenon in the North Black Sea region. It belongs to the type of stone castle fortresses

of the Constantinople style, which possessed a donjon and corner towers. Some archaeological finds unearthed from the fortress had Lithuanian origin, such as cross-shaped linings on bags, crossbow bolts, and a slab with the heraldic sign of one of the Lithuanian families, with a possible close connection to Vitovt himself (the letter “v” was depicted near the heraldic sign). Among other finds, there were Genoese bombard stone balls and multiple iron artifacts, which attested to the mass production of iron in Lithuanian and Ukrainian culture. There were Tatar coins with countermarks of Genoese Kafa, as well as Polish coins of the first half of the XV century, and some coins of the Crimean Khan Mengli Geray. There were also various influences from the Islamic lands, such as the use of a Seljuk decoration at the tower of a monumental building. And there were numerous ceramic wares, which have analogies in the ceramics of Crimea. This syncretic Cristian and Islamic culture is characteristic of all the fortresses in the Black Sea region and they played an important role in the creation of multicultural spaces in that area.

324. SHAPING CONNECTIVITY ALONG THE DANUBE, SAVA, AND DRAVA RIVERS UNDER THE OTTOMANS

**Contribution format:** Oral  
**Contribution authors:** Jelena Živkovic (University of Tübingen | Institute of Archaeology, Belgrade) – Vesna Bikić (Institute of Archaeology, Belgrade)

This paper discusses the preliminary results of an archaeological study on ceramics from Ottoman-period riverine settlements (the 16th-17th centuries) located in the Middle Danube region. The focus is on the marshland situated between the Danube, Sava, and Drava rivers, an area that was part of the long-standing frontier between the Ottoman Empire and Hungary. Following the conquest of Belgrade in 1521, the Ottomans took control of all settlements between the rivers, initiating the forced resettlement of local population and waves of migrations. Within this dynamic socio-political landscape, a new horizon of material culture emerged, characterised by the wide distribution of pottery with uniform morphological traits. This phenomenon reflects the regional connectivity of communities settled along the rivers, shaped within the Ottoman network in Southeastern Europe. The study investigates this connectivity through patterns of common pottery distribution across the Srem region in Serbia. This pottery was used in medium-size towns connected by the rivers. The research examines the regional variability of ceramic wares by comparing data on their morphology, quantities and technological traits. All data were systematically recorded in a database and interpreted in relation to archaeological and historical evidence concerning settlements, the fluvial environment, migration patterns, and broader socio-economic conditions.

964. PERSIAN FAIENCE WARE IN OTTOMAN HUNGARY

**Contribution format:** Poster  
**Contribution authors:** Tünde Komori (Hungarian National Museum)

Asian decorative ceramics have been a topic of Ottoman archaeology research in Hungary since the beginning of the field. Among these objects, Persian faience has been identified early on and has been separated from Iznik ware and Chinese porcelain. Recently, a comprehensive study has been conducted on Asian decorative ware unearthed at Hungarian Ottoman-period (1541-1699) sites, resulting in a revision of the existing typology of these objects. This revised typology brought about the identification of Persian faience has been further refined. This partly meant the separation of Kütahya ceramics from the Persian types, and partly the identification of the Gombroon type among the Persian pieces. The latter is a previously unidentified type in Hungary, bringing a new angle into not only the history Ottoman material culture, but also to the history of trade and trading networks. The appearance of Gombroon ceramics in the second half of the seventeenth century in the Ottoman Empire represents the contemporary trading networks of the early modern Silk Routes that persisted throughout this period, showing the importance of key geographical points such as the Persian Gulf. The aim of this poster is to present the separation of Kütahya ware from Persian faience, as well as to present the types connected to partly the main Safavid production centers such as Kirman and Mashhad, and partly to Gombroon. Furthermore, the trading routes through which these objects might have moved from the Safavid Empire to present-day Hungary are also presented.

53 NEANDERTHAL-HOMO SAPIENS SUBSISTENCE DIFFERENCES 60,000 TO 40,000 YEARS AGO IN CENTRAL AND SOUTHEAST EUROPE

**Session theme:** 8. Along and across the Danube!  
**Session format:** Regular session  
**Session keywords:** Middle to Upper Palaeolithic transition, Zooarchaeology, Subsistence strategies, Late Neanderthals and early Homo sapiens, Central and Southeast Europe  
**Session organisers:** Anna Wagner – Geoff Smith (University of Reading) – Lia Vidas (Institute for



**SESSION ABSTRACT**

Exploring differences in subsistence strategies between Neanderthals and Homo sapiens during the Middle to Upper Palaeolithic transition is crucial for reconstructing the behavioural and biological evolution of both species. Central and Southeast Europe were key migration corridors, as seen by sites like Bacho Kiro Cave (Bulgaria) and Ranis (Germany), but they have remained rather underexplored, leaving gaps in our understanding of survival strategies during this period. To bridge these gaps, our session will leverage a combination of traditional zooarchaeological, morphological, taphonomic, and biomolecular methods, such as isotopic analysis, palaeogenomics, and palaeoproteomics, including Zooarchaeology by Mass Spectrometry (ZooMS). These approaches maximise data retrieval, enrich our understanding of past human subsistence patterns and hominin-environment interactions, and challenge prevailing assumptions about the evolutionary trajectories of Neanderthals and Homo sapiens. Building on the potential of these integrated approaches, our session aims to gather current zooarchaeological research on the last Neanderthals and the earliest Homo sapiens in Central and Southeast Europe (from ca. 60,000 - 40,000 years ago, covering the area from Germany to Greece). Our primary objective is to outline the subsistence behaviours and strategies that distinguished late Neanderthals from early Homo sapiens, shedding light on variations in their diets and survival. This includes, but is not limited to, subsistence behaviour, site use, taphonomic features, prey selection, hunting strategies, carcass acquisition, transport, and butchery practices. We welcome contributions (virtual or in-person) that challenge existing paradigms, introduce novel datasets, offer interdisciplinary perspectives using zooarchaeological data as part of case studies, local and supra-regional overviews, or new discoveries focused on investigating differences in subsistence in the region. This will provide an opportunity to gather a range of perspectives, assess behavioural variations, and discuss whether differences in subsistence practices contributed to the eventual disappearance of Neanderthals and the ultimate survival of our species, Homo sapiens.

**CONTRIBUTION ABSTRACTS**

**1652. MAXIMISING DATA FROM FRAGMENTED BONE TO UNDERSTAND THE COEXISTENCE OF NEANDERTHALS AND EARLY HOMO SAPIENS IN CENTRAL AND SOUTHEAST EUROPE**

**Contribution format:** Oral

**Contribution authors:** Karen Ruebens – Frankie Tait – Anna Wagner – Geoffrey Smith (University of Reading)

Recent studies of late Neanderthal DNA continue to provide direct evidence for Neanderthal-Homo sapiens interbreeding. However, questions on the chronological and geographic extent of Neanderthal-Homo sapiens coexistence in Europe, their behavioural differences and interactions, remain poorly understood. The goal of project COEXIST, which was selected by the ERC and funded by the UKRI, is to apply cutting-edge methodologies from archaeological science, proteomics and genetics to small bone fragments to determine the behavioural variation of local late Neanderthals and Homo sapiens entering Europe, identify periods and regions of their coexistence, and clarify the role of subsistence differences in the eventual disappearance of Neanderthals. Recent discoveries have been revolutionary in showing that early groups of Homo sapiens had already arrived in Bulgaria, Czechia, and Germany more than 46,000 years ago. These findings raise fundamental questions concerning current models on the timing and extent of coexistence between late Neanderthals and early Homo sapiens, illustrating an overlap in this region for several millennia. They also emphasise the importance of the archaeology of this region. Central and southeast Europe, covering the area from Germany, Czechia and Slovakia, over Romania, Serbia and Montenegro, into Greece, were strategic crossroads between east and west during the Palaeolithic. This talk will lay out the background to this project and present its methodology, which is aimed at maximising the potential of existing faunal collections in the region, especially the bone fragments which cannot be identified based on morphology alone. Moreover, an important component of the project is focussed on further advancing the integration of zooarchaeological and ZooMS datasets. This presentation will set the context for two other talks in this session, Wagner et al. and Smith et al., which will be discussing the first results of two COEXIST case studies.

**568. INTEGRATING ZOOMS AND ZOOARCHAEOLOGY TO UNDERSTAND MIDDLE PALEOLITHIC SUBSISTENCE STRATEGIES AT HOHLE FELS (SWABIAN JURA, GERMANY)**

**Contribution format:** Oral

**Contribution authors:** Britt Starkovich (Senckenberg Centre for Human Evolution and Palaeoenvironment at the University of Tübingen) – Fei Yang (Institute for Archaeological Sciences, University of Tübingen) – Samantha Brown (Centro Nacional de Investigación sobre la Evolución Humana, CENIEH) – Nicholas Conard (Department of Early Prehistory and Quaternary Ecology, University of Tübingen)

The Swabian Jura in Southern Germany contains numerous iconic sites with long Middle through Upper Paleolithic sequences. The sites preserve ample lithic and faunal material, in addition to the oldest known art and musical instruments, which date to the Aurignacian period. Biomolecular preservation is particularly favorable in the region, which opens the door to a range of analytic techniques – including ZooMS – which can then be integrated into larger analyses of past hominin-animal interactions. Archaeologists have generally considered the Middle Paleolithic of the Swabian Jura to be more ephemeral than the Upper Paleolithic, with lower artifact densities at nearly all sites. In 2020, excavators uncovered Middle Paleolithic layers at Hohle Fels that are rich in lithics, burned and unburned faunal remains, and the first leaf point found in situ in the Swabian Jura in the modern era. The horizons underly layers that date to 62,500 +/- 4,000 BP. In this paper, we present faunal remains from the newly excavated Middle Paleolithic layers at Hohle Fels using a novel approach to integrate zooarchaeology and ZooMS. We first analyzed the assemblage taxonomically and taphonomically using standard zooarchaeological techniques. We then selected 1) specimens that were identifiable to anatomical element but were taxonomically ambiguous, and 2) bone retouchers, to analyze using ZooMS. The integrated analysis shows that Middle Paleolithic hominins at Hohle Fels ate large game including reindeer, wild horse, ibex, mammoth, and rhinoceros, and used fragments of horse and mammoth bones as retouchers. Our analysis also provides us species-specific information on body part transport strategies and anthropogenic modifications.

**1138. USING ZOOMS AND ZOOARCHAEOLOGY TO INVESTIGATE NEANDERTHAL DIET AT CRVENA STIJENA, MONTENEGRO**

**Contribution format:** Oral

**Contribution authors:** Geoffrey Smith – Anna Wagner – Frankie Tait (Department of Archaeology, University of Reading) – Eugèn. Morin (Trent University, Ontario, Canada) – Goran Pajovic (Curator of Archaeology National Museum Cetinje, Montenegro) – Mile Bakovic – Nikola Borovinic (Center for Conservation and Archaeology Ministry of Culture Cetinje, Montenegro) – Gilbert Tostevin – Gilliane Monnier (Department of Anthropology, University of Minnesota Minneapolis) – Karen Ruebens (Department of Archaeology, University of Reading)

Crvena Stijena is a large rock shelter in the Dinarides mountains in western Montenegro. Thanks to its rich and deep stratigraphy, the site is one of the most important Palaeolithic sites in the Balkan peninsula. The sequence contains at least 15 meters of Middle Paleolithic occupations capped by a volcanic ash (the Campanian-Ignimbrite Y5 eruption in Italy), which was deposited ca. 40,000 years ago. Within the framework of COEXIST, we conducted ZooMS on unidentifiable material from Layers XI (containing the CI-tephra) and the underlying M1 and M2 occupations that are approximately 40,000-45,000 years old. This included material from the 2015 excavations led by R. Whallon and M. Bakovic (n = 352) and the 2019 excavations (n = 32) led by the National Museum of Montenegro and the University of Minnesota. Collagen preservation is excellent with ca. 90% of the bones identifiable to taxa using the AmBic ZooMS protocol. Our results illustrate a range of species including cervids (red deer, roe deer), Bos/Bison, caprines, horse and bear alongside rarer species such as pig and birds. Both carnivore and human bone surface modifications were identified on the fauna, though the predominance of anthropogenic marks suggests Neanderthals played a larger role in bone accumulation. Further work will seek to contextualise our findings with current archaeological and faunal studies at Crvena Stijena to investigate human diet and ecological adaptation. This study provides a good starting point for further exploration of late Neanderthal and early Homo sapiens diets in southeast Europe, and using ZooMS to provide new insights into subsistence strategies and human-animal interactions.

**82. PALAEOPROTEOMIC ANALYSIS OF BONE FRAGMENTS FROM PALAEOLITHIC CRIMEA REVEALS NEW SUBSISTENCE INSIGHTS AND HOMININ REMAINS**

**Contribution format:** Oral

**Contribution authors:** Emily Pigott – Konstantina Cheshmedzhieva – Laura Sluis (University of Vienna, Department of Evolutionary Anthropology | Human Evolution and Archaeological Science (HEAS) Network, Vienna) – Thorsten Uthmeier (Institut für Ur- und Frühgeschichte, FAU Erlangen-Nürnberg) – Victor Chabai (Institute of Archaeology, National Ukrainian Academy of Science, Kyiv) – Marylène Patou-Mathis (Muséum National d’Histoire Naturelle, Institut de Paléontologie Humaine) – Ron Pinhasi – Martin Kuhlwilm – Katerina Douka – Thomas Higham (University of Vienna, Department of Evolutionary Anthropology | Human Evolution and Archaeological Science (HEAS) Network, Vienna)

The Crimean Peninsula is a key location for understanding the replacement of Neanderthals by Homo sapiens, with several important sites and abundant lithic and subsistence evidence. Human remains are, sadly, extremely rare and this problem is exacerbated by the considerable number of fragmented, unidentifiable bones (<2-3cm in



size) in the assemblages which, while they might contain hominin fragments, have not been able to be formally identified. . In this study, we used collagen peptide fingerprinting, also known as Zooarchaeology by Mass Spectrometry (ZooMS), to identify morphologically unidentifiable bones to genus or species level and screen for potential human remains. We analysed 628 bone fragments with ZooMS, the vast majority of which were faunal remains that could be attributed with confidence to a range of animals subsisted upon during the Palaeolithic in the region. Importantly, three bone fragments displayed collagen fingerprints matching the Hominidae: two from the site of Starosel'e and one from the Siuren site. Radiocarbon dating of the Starosel'e bones revealed them to be 44–46,000 and 42–44,000 years old, close to the transition between the disappearance of Neanderthals and early dispersal of Homo sapiens. We obtained ancient DNA analysis from the younger bone, finding very low endogenous content (<0.1%). However, we could recover a 1-fold coverage of mitochondrial genome which, when placed in a mtDNA tree, showed that it fell on the line of the Neanderthal mitochondria lineage. The results demonstrate that ZooMS is a powerful tool for identifying previously unrecognised faunal remains, which help reconstruct paleoenvironments and ancient climates. It also enables rare new hominin remains to be identified that can be directly dated, genetically sequenced, and analysed for dietary isotopes.

**2004. AGE-SEX SELECTIVITY IN ARTIODACTYL HUNTING ACROSS THE LATE MP-EARLY UP AT ÜÇAĞIZLI CAVES I AND II (TÜRKİYE)**

**Contribution format:** Oral  
**Contribution authors:** Mary Stiner (University of Arizona (Tucson))

Prey selection biases are important to understanding cultural and strategic variation in Paleolithic forager societies. This study compares mortality patterns and sex structures in Bezoar goat, Mesopotamian fallow deer, and roe deer in the Paleolithic layers of Üçağızlı Caves II and I. These caves are situated 1 km apart on the Hatay coast of southern Türkiye, at the interface of rich coastal plains and forested hillsides. They span the late Middle Paleolithic through early Upper Paleolithic (Ahmarian and Initial UP) periods. The zooarchaeological results are compared to cases from the Levant, Anatolia, and southern Europe. Stark prey age selection differences are found that relate to specific-specific utilities and on-site activities. When focusing on wild goats, hunters preferred prime-age adults, whereas yearlings were preferred in the case of fallow deer. The roe deer assemblages display either of the two prey selection modes. The yearling bias in the deer assemblages seems to relate to a need for large but delicate hides. Similar patterns of prey age selection are found within the Middle and early Upper Paleolithic periods; species dominance varies with time, but the distinct age biases for goats versus deer are similar. The bias against old adults in the goat assemblages suggests heavy use of the hunting grounds around the caves. In the Ahmarian and Initial Upper Paleolithic layers of ÜcI, consistently high frequencies of end-scrapers and their micro-damaged edges confirm the importance of hide preparation on site. Side scrapers are common in the Middle Paleolithic layers of ÜcII, but the tools have not been studied for microdamage. The diversity and richness of refuse in the sites indicates that they functioned as residential camps at which a broad range of activities were carried out in both Paleolithic periods.

**827. EARLY UPPER PALAEOLITHIC HUMAN SUBSISTENCE AND PREY CHOICE: ARCHAEOZOOLOGICAL EVIDENCE FROM BUKOVAC AND ORLOVAČA ROCK-SHELTER SITES, SERBIA**

**Contribution format:** Oral  
**Contribution authors:** Jovana Jankovic (Department of Archaeology, Faculty of Philosophy, University of Belgrade) – Tamara Dogandžić (MONREPOS Archaeological Research Centre and Museum for Human Behavioural Evolution, LEIZA) – Vesna Dimitrijević – Dušan Mihailović (Department of Archaeology, Faculty of Philosophy, University of Belgrade)

The research on the Early Upper Palaeolithic in the Central Balkans had a significant role in providing new information on demographic and cultural changes, settlement patterns and population dispersals. Bukovac and Orlovača rock-shelters are situated in the broader Velika Morava river valley in Eastern Serbia. Discoveries of Protoaurignacian and Early Aurignacian layers were made at Orlovača and a Late Aurignacian layer is present at Bukovac, while the Middle Paleolithic occupation had only been detected at Orlovača. The focus of this study is on Early Upper Palaeolithic occupations and analysis of faunal remains from Aurignacian layers of both sites, with the aim to explore trends in human activity, subsistence behavior and prey choice. Faunal remains consist of a wide range of species. The primary taxon at Bukovac is alpine ibex and at Orlovača it is the cave bear. Taphonomic analysis showed presence of human modifications and butchery on several bones, as well as traces of carnivore modifications on bones, which suggests that both groups were responsible for the accumulation of animal remains at these two sites. The high level of bone fragmentation, including bones with cut and percussion marks, led to taxon identification based on animal size and limited information on hunting strategies, prey choice and transport. Traces of human butchery are mostly present on long bones of large mammals. Results of the archaeozoological analysis indicate that the carnivore activity was greater, especially in Orlovača which was used as a shelter by cave bears, while hunter-gatherer groups occasionally used these rock-shelters as temporary

hunting camps. The obtained results provide new information on human presence and subsistence in the upland region of Central Balkans, since these sites are situated above 250 m above sea level, which is uncommon as the majority of the Aurignacian sites are situated at a lower altitude.

**616. REFINING NEANDERTHAL DIET AND CHRONOLOGY: ZOOMS ANALYSIS OF FAUNAL REMAINS FROM BOROȘTENI PEȘTERA CIOAREI**

**Contribution format:** Oral  
**Contribution authors:** Anna Wagner – Geoff Smith – Frankie Tait (Department of Archaeology, University of Reading) – Cornel Pop (Columbia College, Vancouver) – Helen Fewlass (Department of Anthropology and Archaeology, University of Bristol) – Marin Cărciumaru (The Museum of Human Evolution and Technology in Paleolithic; Valahia University of Targoviste) – Karen Ruebens (Department of Archaeology, University of Reading)

Advances in palaeoproteomics, particularly Zooarchaeology by Mass Spectrometry (ZooMS), have transformed the study of fragmented faunal remains at Palaeolithic sites, providing new insights into subsistence strategies and hominin-environment interactions. By integrating ZooMS with morphological and taphonomic analysis, and radiocarbon dating, we can refine our understanding of faunal assemblages, subsistence patterns, and chronologies. This pilot study is part of the COEXIST project, which is focused on late Neanderthal and early Homo sapiens coexistence in central and southeast Europe. Here we present new data from the Boroșteni Peștera Cioarei site in Romania. Through a multidisciplinary approach combining ZooMS, taphonomic analysis, and radiocarbon dating, we investigate morphologically unidentifiable bone fragments from this late Neanderthal cave site. Our goal is to enhance understanding of the site's faunal composition, the interactions between hominins, carnivores, and prey, and to refine the chronology of its late Middle Palaeolithic layers. We analysed 64 faunal samples from layers J (250cm–255cm) and K (202cm–208cm), excavated in 1994–1995, using ZooMS, an. radiocarbon dated five bones. Preliminary results indicate exceptional collagen preservation, with 96.9% yielding successful identifications. The analysis reveals a predominance of Ursidae, along with one individual of Castor sp. and herbivores such as Cervid/Saiga, Caprinae, and Bos/Bison. Taphonomic evidence, including carnivore digestion, indicates the site functioned as a carnivore den during the deposition of these layers, although the presence of low quantities of archaeological material suggests ephemeral hominin occupation. This study lays the groundwork for further exploration of late Neanderthal and early Homo sapiens diets in southeast Europe. The agreement between the zooarchaeological (Pathou-Mathis 2000) and ZooMS analyses in these layers underscores their value for reconstructing past subsistence strategies. The COEXIST team will continue investigation of the unstudied material from Boroșteni Peștera Cioarei, with the expectation of yielding further revelations on Neanderthal ecology.

**1746. TRIAL BY FIRE – THE STORIES HEATED LITHICS TELL ABOUT PLEISTOCENE FIRES**

**Contribution format:** Oral  
**Contribution authors:** Adrian Dobos – Alexandru Giornei (Institute of Archaeology „Vasile Pârvan”) – Wei Chu (Leiden University)

Fire as a tool is intrinsically connected to human evolution throughout the prehistory, but the knowledge on the topic, particularly in the Balkans, is still incomplete. Our presentation explores the relationship between hominins and anthropogenic fire use through the analysis of heated chert lithic artifacts from the Early Upper Paleolithic site of Românești-Dumbrăvița in Southwestern Romania. The site has two discrete UP levels, one belonging to the proto-Aurignacian and a sparser one from the Epigravettian. Our approach investigates the potential of heated lithics to provide information about the temperatures they were exposed to in a site which preserve no other testament of Pleistocene fires. We used cherts with the same properties as those knapped by the Paleolithic communities from the site and replicated fire exposure at several temperatures and for different time durations. We examined and quantified the changes occurred to the lithics in terms of color, density, and crazing. The results indicate a correlation between temperature and changes in the physical properties of the lithics, whereas fire duration plays a minor role. An ad-hoc discrimination can be made between ‘low’ and ‘high’ temperatures for the particular type of chert which was analyzed. Furthermore, we were able to discern three combustion zones in the proto-Aurignacian level solely through the properties of the heated lithics, as other features related to fire (charcoal, ashes) have not preserved. Our results have implications on reconstructing hominin subsistence strategies at the beginning of the Upper Paleolithic by providing information on the location of the hearths at a site-scale and on fuel economy. Furthermore, they provide ground for comparative analysis with (Late) Middle Paleolithic sites. The research was funded through the CNCS – UEFISCDI grant TE 99/2022 and ERC-Consolidator grant HOME: Palaeolithic Shelters in East-Central Europe



178. PALAEOPROTEOMIC ANALYSIS OF BONE FRAGMENTS FROM PALAEOLITHIC CRIMEA REVEALS NEW SUBSISTENCE INSIGHTS

**Contribution format:** Poster  
**Contribution authors:** Emily Pigott – Konstantina Cheshmedzhieva – Laura Sluis (Department of Evolutionary Anthropology, University of Vienna | Human Evolution and Archaeological Science (HEAS) Network) – Thorsten Uthmeier (Institut für Ur- und Frühgeschichte, FAU Erlangen-Nürnberg) – Victor Chabai (Institute of Archaeology, National Ukrainian Academy of Science, Kyiv) – Marylène Patou-Mathis (Muséum National d’Histoire Naturelle, Institut de Paléontologie Humaine) – Ron Pinhasi – Martin Kuhlwilm – Katerina Douka – Thomas Higham (Department of Evolutionary Anthropology, University of Vienna | Human Evolution and Archaeological Science (HEAS) Network)

The Crimean Peninsula contains a number of significant Palaeolithic sites, including Kabazi II, Kabazi V, Siuren I, Starosel’e, and Chokurcha I. The region was occupied for long periods by Neanderthals and later, during the Middle to Upper Palaeolithic transition, by early Homo sapiens. At all sites a considerable number of fragmented, unidentifiable animal bones (<2-3cm in size) were discovered, too small to be taxonomically identifiable and to all intents and purposes of little use to formal zooarchaeological study. In the last 15 years, however, collagen peptide mass fingerprinting, also known as Zooarchaeology by Mass Spectrometry (ZooMS), has been developed and increasingly applied to such assemblages to identify morphologically unidentifiable bones to genus or species level. This method takes advantage of small differences in the peptide mass sequences of Type 1 collagen most commonly, to enable bone fragments to be identified to species/genus level, using mass spectrometry. We analysed 628 bone fragments from several Palaeolithic sites with ZooMS, finding that 82.3% had sufficient collagen preservation for taxonomic identification. Our results suggest Palaeolithic humans in Crimea primarily hunted horses (Equidae), which is highly represented at Kabazi II, Kabazi V, and Starosel’e at over 89%. The second highest taxonomic group is Bovidae and Cervidae across all sites. There is also a prominence of mammoth, and other large ungulates, offering insights into the region’s paleoenvironment and subsistence strategies. Kabazi II had a large amount of samples collagen failing (17.8%), which may be due to the preservation at an open-air site. We interpret the results of the ZooMS-generated data with previous zooarchaeological data and draw conclusions about the subsistence behaviours of Neanderthals and modern humans in the Crimea during this important stage of the Middle to Upper Palaeolithic.

54 CULTURAL HERITAGE, ARCHITECTURE, AND ARCHAEOLOGY AS INTERTWINED PRACTICES: FROM MANAGEMENT TO ALTERATION AND SUSTAINABLE DESIGN

**Session theme:** 2. Intertwined Epistemologies: Transcending the Data – Theory Divide  
**Session format:** Regular session  
**Session keywords:** Intertwined position, Profession, Epistemology, Heritage, Value and Quality, Transformation  
**Session organisers:** Magnus Rönn (Kulturlandskapet (The Cultural Landscape)), – Helena Teräväinen (Aalto University) – Leif Östman (Novia University of Applied Sciences) – Paula Molander (Kulturlandskapet (The Cultural Landscape))

SESSION ABSTRACT

**Abstract** This multidisciplinary session is combining three fundamental ideas. Firstly, the built environments must be understood as intertwined and as a perceived world in its wholeness. Secondly, the transformation of cultural heritage must include deep site knowledge combining architecture and archaeology in framing a sustainable design perspective. Thirdly, authorities and private companies are intertwined in safeguarding and managing cultural values as well as designing strong, sustainable architectural qualities. The overall aim of this interdisciplinary session is to identify, explore, and critically reflect on the intertwined positions of architecture, architectural conservation, and archaeology. Scope and invitation We invite scholars to present papers that shape our perception and understanding of processes in the ongoing transformation of the surrounding cultural environment run by public authorities and private companies. Intertwined positions may be identified, clarified, and become accessible for critique through studies of architecture and urban design, archaeology, and cultural heritages when sites are transformed. The involved professions may have very different approaches and understanding of sustainability. Four tracks We are looking for papers by scholars in architecture and urban design, architectural conservators, and archaeologists to be discussed in the multidisciplinary session. The framework focuses on profession and transformation of cultural heritages as material artefacts. Of special interest in this framework are contributions presenting different kinds of intertwined positions in the four following tracks: 1)

Design in intertwined relations between epistemologies and new and old policies in built environments including cultural heritage: 2) Competing positions: Exploitation, protection and inclusion or separation as approaches in design and development epistemologies: 3) Reflection on concepts showing intertwined positions in architecture and urban design, architectural conservation, and archaeology: 4) New ways of seeing and understanding cultural heritage, archeology and architectural qualities in relation to an expanding liberal market agenda.

CONTRIBUTION ABSTRACTS

36. ARCHITECTURE, PROFESSION, AND INTERTWINED POSITIONS: COMPETITION AND DESIGN IN AREAS HAVING PROTECTED CULTURAL HERITAGE VALUES

**Contribution format:** Oral  
**Contribution authors:** Magnus Rönn (Kulturlandskapet (The Cultural Landscape))

This contribution deals with intertwined positions in architecture and planning projects. The aim is to show, examine and analyze how intertwined positions are expressed in competitions taking place in areas with valuable cultural environments. Competitions are often organized to find good design solutions to conflicting interests regarding exploitation and conservation. In these assignments, complex relations can be found among professionals such as architects, architectural conservators, and archaeologists. The understanding of cultural heritage values and architectural qualities as design problems can be assumed to include both the separation of concepts and integration of key ideas in architecture and planning projects carried out as competitions. These positions may be outspoken as well as embedded in planning processes, detailed development plans, competition programs, design solutions, judgement, implementation and building permits.

**Objectives and Research Questions**

The intention is to clarify the following questions in architecture and planning projects:

- What kind of positions can be identified among professionals with responsibility for cultural values and architectural qualities?
- How can these positions be described?
- Are there any typical patterns of separation, integration, and intertwined positions in architectural and planning projects conducted as competition in areas having cultural heritage values.

**Method and result**

The contribution has an explorative approach in a case study methodology. A selection of instructive cases of competitions are going to be studied with the support of document analysis, site visits, architectural critique, and interviews with key players. The result is expected to be “thick descriptions” of a limited number of cases showing how driving forces for separation, integration, and intertwined positions among professionals change in architectural and planning projects from start to build permit.

77. INTERTWINED CULTURES OF CONSERVATION MANAGEMENT IN FINLAND

**Contribution format:** Oral  
**Contribution authors:** Leif Östman (Novia, University of Applied Sciences)

This paper investigates current planning processes in the management of cultural heritage, aiming to incorporate citizens, development aspirations, facts, and knowledge into a productive, democratic dialogue. It examines current regulations and conservation practices within the framework of Planning Law, which is instrumental in facilitating diverse inputs of factual data, criticism, and transparent political decision-making. The theoretical underpinning for this evaluation draws from democratic ideas by John Dewey and Jürgen Habermas, and considers ideological aspects embedded in critical heritage. Additionally, Pierre Bourdieu’s concepts of cultural and commercial powers are discussed to address commercial interests, which often appear as destructive forces when developmental interests are involved. These interests are interpreted as legitimate powers and key drivers of development, thus important in making sense of present society. The paper aims to dissect current practices through theoretical lenses, interpreting value standards based on rationality and democracy. It recognizes differing values and interests as legitimate, advocating for a management process capable of handling conflicts and producing solutions that are meaningful to community members regarding the development of their culture.

100. THE INTERTWINING OF ARCHITECTURE AND ARCHAEOLOGICAL HERITAGE WITH MODERN CULTURAL URBAN SUSTAINABILITY. THE CASE OF HADRIAN’S LIBRARY IN ATHENS

**Contribution format:** Oral  
**Contribution authors:** Athanasios Kouzelis (Kulturland)

The scientific interest in the issue of linking cultural heritage with sustainability does not only derive from the international treaties that have been established, but also from the interest of local societies in the sustainable restoration of monuments and archaeological sites within an urban environment aiming to a cultural regeneration



and upgrading . It is pointed out that applied policies at the European and Greek State level that seek the sustainable development of cultural heritage are considered insufficient in terms of their intended result, because they ignore the principles of compensatory planning and the contribution of archaeological restorations to the cultural upgrading of the urban space. Based on the above, this work aspires to explore the possibilities and perspectives arising from the planning of cultural heritage as an element of the image and city life according to the basic principles that make up the concept of sustainability. The restoration of Hadrian’s Library, an architectural masterpiece built in 132 AD, and one of the most emblematic present monuments of antiquity in modern Athens, is chosen as a case study. The research method of the work concerns the following objectives: a) In the first phase, the rendering of the concept of archaeological heritage as a cultural resource that makes up a sustainable urban environment is sought. b) Next, it is sought to connect the architectural archaeological heritage of an existing monument (Hadrian’s Library) with the managed cultural map of the city of Athens and finally c) to draw scientific conclusions that will highlight the critical factors of planning the cultural heritage of antiquities, which contribute to shaping the image of the city and the sustainable development of the urban space.

**593. THE ECONOMIC GROWTH DISCOURSE OF CITIES CHALLENGING CULTURAL HERITAGE PRESERVATION IN URBAN PLANNING**

**Contribution format:** Oral  
**Contribution authors:** Helena Teräväinen (Aalto University)

Urban Planning processes are executed by professional planners but guided by politicians. The Finnish Land Use Act is reformed but still appreciates the cultural heritage. The political voices don’t always follow the scientific, multifaceted reasoning. The world is departing, there are rich cities as well as impoverishing regions. Developers impact on real estate policies; cities always aim to grow. Recently in Finland we have seen several examples, where objects of preserved, cultural built heritage are in danger. Finland has after the II World War continuously been living in the atmosphere of demolishing everything old, to build new and bigger instead. This still goes on, even though scientific reports are warning about emissions into airspace due to heavy demolitions and on the other hand researchers are concerned on the loss of the valuable built heritage. The former capital Turku has a rich archaeological heritage but a long history o. dismantling the wood house history. The current capital Helsinki is planning huge constructions and not only by dismantling comparatively new buildings but also by filling important historical free public squares, for example in front of the central railway station. In other, smaller cities valuable historic buildings may become threatened because they seem to be in bad condition, without any use – and the lack of funding prevents renovations. This kind of reasoning has started to threaten even church buildings, which earlier were seen as the most important built heritage. The aim of this paper is to research, how the argumentation varies in public discussions, when some valuable subjects of cultural built heritage are threatened by demolition. The research material consists of newspaper texts as well as official documents in municipal decision processes, in selected comparative cases. The collected data is categorized in themes and analysed using text and discourse analysis.

**898. PRECARITY AND COMPLEXITY OF TRADITONAL VILLAGES IN CHINA**

**Contribution format:** Oral  
**Contribution authors:** Su Yin (University College London)

The hyper industrialisation of China in the recent past presents a scale of challenge to traditional cultural practice that is unprecedented any when-and-where-else in the world. This highlights the urgency of attempts in Chinese heritage to respond to the acceleration of cultural transitions that have been underway for a generation. The designation of Traditional Villages as a category of heritage in China dates from 2012. This relatively new heritage management category does however provide an opportunity to reconsider established heritage management practices in vulnerable heritage places subject to the duel intense pressures of urban expansion and rural decline. To explore how Traditional Villages (TVs) can be effectively conserved and managed amidst the precarity and complexity of rural transformations in China, the complexity of the village needs to be understood, which is addressed by this research. On the one hand, villages are experiencing the precarity; on the other hand, villages are involved in a complex network, interacting with different agents all the time. This research starts from reviewing the huge transformations that rural areas have experienced. Then the national policies and strategies are reviewed, like Three Rural Issues and Rural Revitalisation, responding to the precarity, which influence the village from multiple dimensions. Shaozhuang Village are applied as a case study, and this research employs document analysis, interviews, and participant observation to examine the complexity of the village as an entity. Shaozhuang Village is considered in its broader contexts before considering how the designation of Traditional Village engages in that complex network. The interactions among village, town, county and city, the relationship between village and surround environment, village and food chain and village and internet are examined to explore. Then the everyday life in Shaozhuang Village is investigated, which is one of the essential dynamics of the village.

**1072. HOW TO UNLOCK THE HERITAGE POTENTIAL OF A SITE WHILE DEVELOPING IT IN A CONSIDERATE WAY**

**Contribution format:** Oral  
**Contribution authors:** Urban Nilsson (Nyréns Arkitektkontor | Göteborgs universitet)

Through a comparative study the paper explores how the iterative method of Nyréns functions in different projects launching the cultural heritage agenda intertwining it with several other perspectives in the urban design process. In the early stages of the planning process this method makes sure that the heritage perspective is intertwined. Contemporary urban design is functioning within the planning and environmental legislation and the reality of the real estate market. The businesses are watching their interests by using consultants to drive projects and to break deals with other parties. Opposing planning interests need to be solved in order to realize the new plan. The heritage must be advocated by professionals in the field. A conservationist contributes with cultural historic expertise in a process where different societal interests collide. Initially a survey is written mapping the history, the physical remains and the cultural value of the site. Recommendations are formulated as a venture point discussing heritage matters. As a heritage preserver it is vital to take part in the process of prioritizing what structures to keep and what to let go. In this unpacking of the site new knowledge is produced which should be used in the repacking of it. A selection of physical expressions to integrate in the design are decided on for further adaptation blending old and new. A new cityscape is thus created containing a considerable share of the history of the site: for the benefit of users, visitors and residents thus offering social sustainability. Keeping existing structures, refurbishing and reusing them ought to be the highest form of sustainability while reducing the carbon dioxide emissions. Through the architecturally curated existing structures the transformed site can be explained.

**1776. THE SOCIAL-ECOLOGICAL VALUE OF URBAN HERITAGE FOR THE SUSTAINABLE DEVELOPMENT OF CAUCEL, MERIDA, YUCATAN**

**Contribution format:** Oral  
**Contribution authors:** Benjamin Vis (Universidad Autonoma de Yucatan | Universite Libre de Bruxelles)

Present-day Caucel, Yucatan, represents a gradually grown vernacular settlement pattern that has been heavily adapted from precolonial regional practices, consisting of urban blocks divided into ample houselots. In my applied archaeology project studying urban morphology in the Merida region over the long-term, I implemented an urban survey of Caucel. Recently, this satellite town (of Merida) has become virtually encircled (walled) by large-scale expansion neighbourhoods. The local community also grew the historical residential core itself, occupying the buffer of communally administered lands with the contemporary vernacular of autoconstructed dwellings. Most traditional vernacular architecture has disappeared. Few examples of colonial historical styles exist. The unrestored and unconsolidated rubble pyramid just behind the school is scantily recognised. Archaeological evidence emphasises the persistence of lowland Maya agro-urban landscapes, characterised by low built-up densities and the frequent and extensive integration of green or open space. I sought an understanding of the use and value local residents place on current green and open space, as well as the perceived relationship with regional archaeological heritage. This critically contextualises my assertion of social-ecological value encapsulated in the heavily modified, now endangered, remnants of traditional land-use patterns and problematises the disturbed close-knit interdependency between town and landscape. Merida suffers from a scarcity of green space. Eco-archaeological parks are marginally positioned and seem underutilised. Meanwhile in towns like Caucel traditional plots remain an unrecognised social-ecological resource for sustainable urban development. Seeking to influence and provide guidance to urban planners and sustainable spatial design using the deep past as a researcher, implies an intertwined position that highlights conflicting development interests between growth, transitions towards sustainability, subaltern and disadvantaged populations and cultures, and conserving and benefitting from heritage. Can urban heritage take a leading role in increasing the potential of long-term social-ecological urban viability by reinventing regionally appropriate patterns for urban development?

**1853. INTERTWINED DATASETS : STRUGGLING WITH CONCEPTIONS OF LINKED PASTS**

**Contribution format:** Oral  
**Contribution authors:** Loup Bernard (Université de Strasbourg | CNRS)

With over a decade of aggregated datasets, the ArkeoGIS platform (<https://arkeogis.org/>) is a good example to understand how different colleagues and institutions have put archaeological knowledge into digital boxes and how we have managed to link this information. ArkeoGIS is a simple webGIS solution: datasets about the past (sites, artefacts, samples, cores...) are uploaded on the platform and can be queried by any identified professional archaeologist. For open datasets, the ArkeOpen platform is a good tool for visualising and querying the data. The example of the Upper Rhine Valley, with linked extracts from archaeological service inventories, researchers, Masters and PhD theses, projects and palaeoenvironmentalists from different countries, will provide a concrete



case for discussing the possibilities and limitations of these juxtapositions. The presentation will focus on chronological issues, mapping, ontologies and filling in the gaps using datasets from different institutions and fields. Understanding how the data were originally constructed is necessary to better understand how cultural heritage and archaeology can be useful in deciding what and where to excavate or core. In other words, having online access to the state of the art for modelling taphonomy -or planning further exploration- will be key to this presentation.

**2347. UKRAINIAN CASTLE AS AN OBJECT OF CULTURAL HERITAGE LANDSCAPE OF THE CITY OF THE EARLY MODERN PERIOD**

**Contribution format:** Oral  
**Contribution authors:** Larysa Vynogrodska (Institute Of Archaeology National Academy Of Sciences Of Ukraine)

In connection with the expansion of Ukrainian society’s interest in national culture, monuments of defensive and sacred architecture, there is a need to study all the characteristics of castles depending on their regional features. The castle, as an object of architectural heritage in the natural landscape of cities and towns of Ukraine, includes a complex of various aspects that require careful and critical study. This is fortification, archeology, architecture, urban landscape, and many other aspects that together give a complete description of the monument. Note that the majority of Ukrainian castles in the early modern period also had a defensive function. The main problematic issue of the cultural landscapes of Ukrainian castles and cities is the need for their preservation and research, primarily archaeological, since cultural landscapes include material culture, the analysis of which gives a comparative description of the life of the inhabitants of the castle and the city and allows to reveal its common features and individual ethnic manifestations, which are reflected in the residential landscapes of city streets and sacred buildings. The effectiveness of the landscape approach to the processes of urbanization in Ukrainian cities and towns was manifested in the formation of new heritage objects that combine natural and cultural values unique to each historical city. In addition, this approach makes it possible to develop tourist routes through the historical cities of Ukraine, both educational and regional, taking into account natural, architectural, archaeological, urban monuments, since the accelerated development of cities destroys the remains of old streets that have been preserved in historical cities. Today, there is a need to preserve the cultural landscapes of castles, monasteries, and city defense structures, as well as sacred monuments, quarters, and streets of historical cities, by establishing them as protected territories of cultural heritage.

**2348. TRANSFIGURATION OF THE MEDITERRANEAN ARCHITECTURAL HERITAGE: THE CASE STUDY OF THE MANI REGION IN SOUTHERN PELOPONNESUS, GREECE**

**Contribution format:** Oral  
**Contribution authors:** Antigoni Katsakou (Oxford Brookes University)

The concept of cultural landscape encompasses the notion of a synergy between human material culture and natural systems. In many regions, intensified tourist activity, systematically encouraged by both state policies and private developers, as well as difficulties in clearly identifying tangible and intangible heritage qualities have led to a definite split between the primary components of cultural landscapes. Within this context, how is it possible to promote cultural and ecological resilience, through effective building guidelines, rightfully applied? This paper examines the region of Mani, in Southern Peloponnesus, and the small, fishing settlement of Limeni, which has recently emerged as a popular holiday destination, of unique cultural value. Drawing on practice-based research, the author will demonstrate how, in truth, an unprecedented construction boom oriented towards tourist infrastructure and secondary residences, consistently prioritising financial gain over cultural value has altered the settlement’s character and challenges notions of social and cultural authenticity, causing irreversible damage to the natural landscape. Using an ongoing project from her professional practice as a case study, the author will provide an overview of the current situation and explore existing policies and overburdening, time-consuming procedures to obtain building permit. Text-based and morphological analysis will show how archaeological and architectural control committees, often lacking required expertise tend to apply rigid, sterile interpretations of debatable ‘canons’, thus discouraging innovation and adaptive solutions that could actually enhance liveability. The case study eventually resonates with a perpetuating transfiguration of the Greek cultural landscape on a national scale. The paper looks to highlight alternative approaches to applied guidelines and control mechanisms that could promote valid concepts of resilience and heritage protection. The study thus seeks to contribute to a broader discussion on sustainable development in the Greek territory.

**2371. BALANCING HERITAGE AND DEVELOPMENT - COMPENSATION MEASURES IN SUSTAINABLE PLANNING**

**Contribution format:** Oral  
**Contribution authors:** Linda Jungbeck – Stig Swedberg (Kulturlandskapet (The Cultural Landscape))

Sustainable development is often described as resting on three pillars - economic, social and ecological perspectives - in the cultural heritage sector, a cultural perspective is often included as the fourth. Swedish legislation

recognizes both natural and cultural environments as shared values to be protected and managed for future generations. The Cultural Environment Act emphasizes that all remains are protected against damage, and that society bears a shared responsibility for cultural heritage. The Environmental Code contains provisions on natural environment compensation in connection with development, while the Planning and Building Act partially emphasizes the importance of preserving these cultural and historical values. In practice, however, we see that compensation measures for natural environments are more established and implemented to a greater extent than corresponding measures for cultural environments. This presentation explores - based on a practical example from an archaeological survey in Sweden - how conservation and development can end up in competing positions in the context of sustainable community development. By discussing the management of cultural environment compensation in relation to natural environment compensation, it highlights how different professions and actors interpret and apply legislation in planning processes, and how these perspectives can be integrated into the design of future built environments.

**2475. FROM PUTEOLI TO POZZUOLI. DIGITAL TOOLS FOR MANAGING A MULTILAYERED URBAN FABRIC,**

**Contribution format:** Oral  
**Contribution authors:** Luisa Del Giudice (Sapienza, Università di Roma)

The contribution aims to investigate the evolution of the urban fabric of Pozzuoli, a municipality in the Phlegraean Fields affected by the phenomenon of bradyseism: vertical movements of the ground linked to volcanic activity in the Campi Flegrei. The ancient center is Rione Terra, a tuff bank that already hosted the maritime colony of Puteoli in 194 BC and likely earlier, the Greek colony of Dicaearchia. Since then, the fortress has undergone transformations, also influenced by seismic activity in the area. The village was inhabited until March 2, 1970, when it was evacuated due to a severe bradyseismic crisis. Following the evacuation, the Archaeological Heritage Department initiated the first excavation operations, and in 1993, the Campania Region launched a recovery and enhancement program, including ongoing archaeological investigations. The population has not returned to live in the village, only as visitors; however, the site remains accessible despite the ongoing work. Today, the people of Pozzuoli face a new bradyseismic crisis, drawing attention once again to the city’s vulnerability. This contribution, part of a broader doctoral research project, aims to investigate current methods of managing and conserving cultural heritage in relation to recent seismic events, and considering the relation between archaeological site, architectural complex, and new perspectives for the historic district. The study will utilize Digital Urban History tools, particularly HGIS (Historical Geographic Information Systems), to integrate iconographic and documentary sources, archaeological evidence, topographical and geological features of the area, current urban structure, and political and social influences, alongside the historical memory of citizens. The research output can serve as a tool for authorities responsible for land preservation and management, providing a solid analytical basis for policies aimed at conserving urban identities and planning future interventions for the preservation of historic cities.

**1822. COMPENSATION MEASURES IN CULTURAL HERITAGE – THE CASE OF BJÖRKEMOSSEN HERITAGE SITE**

**Contribution format:** Poster  
**Contribution authors:** Paula Molander – Stig Swedberg (Kulturlandskapet)

This poster examines the cultural heritage compensation measures made in Lursång windfarm, Sweden, focusing on the decision to create a digital platform as the primary compensatory measure. It also briefly reviews the reasons why compensation measures are needed within archaeology, architecture or cultural heritage as a way of handling negative impacts on sites, and how online platforms can serve this compensatory purpose. The case with Lursång windfarm and the compensation of Björkemossen cultural heritage site does not concern any significant physical exploitation, but rather visual and audible alterations to the site. The site itself is also not easily accessible. This raised the question on how a compensation measure could best be outlined. The project opted for a website to document and present the cultural heritage sites affected by the construction. This approach was chosen due to accessibility and capacity to engage a broader audience, beyond the physical site. The website presents archaeological sites and visual documentation, ensuring the preservation of archaeological knowledge, despite the impact of the windfarm’s construction. This case aligns well with Track 2 of session #54, by addressing the balance between exploitation, protection, and inclusion in development, through digital means. This compensation measure was one of four ongoing projects examined in the study” Kulturarv i samhällsplaneringen – Kompensation av kulturmiljövården”. The final outline of this project is reviewed in relation to the study.



55 NETWORKS OF CARE AND NEGLECT IN THE ARCHAEOLOGICAL RECORD

Session theme: 2. Intertwined Epistemologies: Transcending the Data – Theory Divide  
Session format: Regular session  
Session keywords: Archaeology of care, Social networks and identities, Structural violence, Bioarchaeology, Social inequality  
Session organisers: Ben Raffield (Uppsala University) – Christina Fredengren (Uppsala University | Stockholm University) – Anna Kjellström (Stockholm University) – Madeleine Lamer (University of British Columbia)  
Session discussant: Renate Larssen (University of Leicester)

SESSION ABSTRACT

The aim of this session is to problematise and explore how concepts of care and neglect were operationalised in the past. The last ten years have witnessed a relative surge of interest in this subject, often with a focus on the bioarchaeological dimensions of care. While this work has shed much-needed light on the perception and treatment of individuals suffering from common or rare ailments, less attention has been afforded to the social context or networks within which various iterations of care were provided. Relatively few attempts have similarly been made to identify and examine care as a form of social praxis – something that was deliberately provided or indeed withheld from human and more-than-human bodies and the environment based on a range of intersecting factors. This raises interesting questions regarding the possibility of identifying and delineating an ‘archaeology of care’ alongside a corresponding ‘archaeology of neglect.’ To what extent is it possible, for example, to identify disparate iterations of care that were extended to members of different social groups or even individuals within the household and community based on institutional conditions? Was the provision of care, furthermore, contingent on the social identities, status, and roles of those who received it? Furthermore, at which points might notions of ‘minimal’ or ‘mandatory’ care intersect with neglectful and perhaps even violent networks of social interaction. In seeking to address these and other questions, we welcome contributions from across the field of archaeological enquiry, and encourage papers that showcase a range of diverse theoretical and methodological approaches, applied across varied regional and chronological contexts.

CONTRIBUTION ABSTRACTS

720. CARE AND NEGLECT IN THE ARCHAEOLOGICAL RECORD: EXPLORING DIMENSIONS AND NETWORKS OF SOCIAL PRAXIS

Contribution format: Oral  
Contribution authors: Ben Raffield (Uppsala University) – Christina Fredengren (Uppsala University | Stockholm University) – Anna Kjellström (Stockholm University)

This paper will open up the session by problematising and exploring how practices and relations of care and neglect were operationalised in the past. In the last ten years, there has been a relative surge of interest in the archaeological study of care, often with a focus on bioarchaeological approaches that have shed much-needed light on the perception and treatment of individuals suffering from common or rare ailments. In this paper, we seek to expand this perspective by considering care as a networked form of social praxis – something that was deliberately provided or indeed withheld from individuals based on a range of intersecting factors. This also raises questions concerning the potential to identify and delineate a corresponding archaeology of neglect in the material record. To what extent is it possible, for example, to identify disparate iterations of care that were extended to members of different social groups or even individuals within the household and community, based on institutional conditions? Was the provision of care, furthermore, contingent on the social identities, status, and roles of those who received it? In considering these and other questions, we make a case for the development of interdisciplinary frameworks to support the study of care and neglect across varied regional and chronological contexts.

30. THE ARCHAEOLOGICAL RECORD OF CARE THROUGH EARLY MEDIEVAL MATERIALITY (4TH–8TH CENTURIES AD) IN THE NORTHWEST OF THE IBERIAN PENINSULA

Contribution format: Oral  
Contribution authors: Celtia Rodríguez-González (Ausonius UMR 5607, Université Bordeaux-Montaigne | Centro de Investigación Interuniversitario das Paisaxes Atlánticas Culturais, CISPAC | Grupo Síncriis, Universidade de Santiago de Compostela) – Ana Delia González-Jimenez (Universidad Nacional de Educación a Distancia (UNED))

The study of the Early Middle Ages in the northwest of the Iberian Peninsula has seen significant advancements in recent decades, primarily due to the growing number of case studies stemming from archaeological research.

However, this historical period still lacks a renewed theoretical framework that would allow for a more in-depth exploration of everyday practices. In this context, the present study provides an initial approach to examining these practices, with a particular emphasis on care and social experiences. This research is situated within the framework of the “COIDARQ: Care, Materialities, and Spaces” project, which aims to analyse and disseminate the everyday practices of early medieval societies from a gender perspective. The study presents preliminary theoretical and methodological progress based on the analysis of archaeological contexts dated between the 4th and 8th centuries AD in the northwest of the Iberian Peninsula. Drawing on the theory of social practice, it explores everyday experiences within settlements and funerary contexts, emphasising the central role of care in social reproduction and the development of both past and present communities. Parallel to the research, we propose a knowledge transfer strategy aimed at enhancing the value of the findings through dissemination and outreach via digital platforms and collaborative activities with local communities. This approach seeks to provide a critical and socially engaged perspective on early medieval social practices and care, emphasizing their significance for understanding historical dynamics and their relevance to contemporary challenges.

636. RECONSTRUCTING SOCIAL STRATIFICATION IN LATE IRON AGE SCANDINAVIA: BIOARCHAEOLOGICAL INSIGHTS FROM VIKING AGE BURIAL SITES

Contribution format: Oral  
Contribution authors: Anna Kjellström (Department for Archaeology and Classical Studies, Stockholm university) – Benjamin Raffield (Department of Archaeology and Ancient History and Conservation, Uppsala University) – Christina Fredengren (Department for Archaeology and Classical Studies, Stockholm university)

The social stratification of individuals during the Late Iron Age in Scandinavia was distinctive. Although it was not entirely impossible to alter one’s social role, the majority of people likely remained in the position into which they were born throughout their lives. Furthermore, enslavement was a phenomenon that marginalised a significant portion of the population. Some contemporary Arabic sources, as well as some modern researchers, suggest that the enslaved were so devalued that they were not accorded burial after death, the ultimate sign of neglect (Skre 2001). This would imply that analyses of burial sites may be significantly skewed, as a crucial segment of the original population is excluded. However, those interred in the Viking Age cemeteries under investigation may still have belonged to varying social strata, as these sites are often associated with entire households. The task of identifying the embodiment of social stratification through bioarchaeological analysis is fraught with challenges. In bioarchaeology, clear indicators such as trauma, pathological changes, and diet have been utilised to identify the unfree in other contexts (Marti. & Osterholtz 2012). When analysing social hierarchies in Late Iron Age burials, it is essential to recognise that few such clear physical differences between groups should be expected. The focus of this study will be on a Viking Age site, which demonstrates the need for a nuanced approach to understanding the complexities of Viking Age social stratification and institutionalised networks of care and neglect.

369. INVESTIGATING SLAVERY IN VIKING AGE KOPPARSVIK, GOTLAND USING SKELETA. DATA

Contribution format: Oral  
Contribution authors: Madeleine Lamer (The University of British Columbia) – Benjamin Raffield (Uppsala University) – Michael Richards (Simon Fraser University) – Darlene Weston (The University of British Columbia)

Slavery in the Viking Age is difficult to identify archaeologically, however, historical documents as well as numerous Sagas testify to the existence of slavery and human trafficking. The difficulty in identifying slavery in the archaeological record lies in the lack of consistency in the members of this social group, a lack of material culture and variation in burial rites. The plasticity of the human skeleton embodies the physical and biological stressors experienced during life and therefore allows enslaved individuals to embody the neglect they experienced as members of a marginalized group. A population-wide investigation of socioeconomic status, stress, and occupation in skeletal materials from the Viking Age (900-1050AD) Kopparsvik burial site on Gotland, Sweden, has sought to identify patterns of fractures and disease load characteristic of enslaved individuals. The analysis of fracture patterns and disease load allow for the interpretation of activities and health status, as well as for the interpretation of risk and quality of life. Sex, age, burial position and style, and the presence of grave goods have been incorporated in the analysis. By determining who in a burial population was enslaved, and by studying the patterns of stress and trauma present, we can better understand the lived experiences of these marginalized individuals. This project illuminates the more nuanced aspects of the past and gives a voice to those who were previously silent.



1730. HEALING COMMUNITIES: THE LIVING AND THE DEAD IN ENGLISH MEDIEVAL HOSPITALS

**Contribution format:** Oral  
**Contribution authors:** Martin Huggon (Bishop Grosseteste University) – Samantha Tipper (Anglia Ruskin University)

The term hospital in the English medieval period encompassed spaces caring for a diverse range of people, from those suffering sickness and poverty to old age and infirmity, or who, as pilgrims and travellers, were isolated and potentially vulnerable. These were both religious and secular spaces, tackling issues that were both spiritual and physical, but often in a manner that implied they were seen just as much as a societal ailment or issue as they were spiritual or physical. This paper will introduce preliminary results from two current hospital excavation projects in Lincoln, St Mary Magdalene Hartsholme and the Malandry, and begin exploring the interplay between the communities of the living and the communities of the dead. A key focus centres on who is being buried at these sites and why were these sites chosen as places of burial for these individuals, including infants and children, and what role they played in the daily life of the hospitals. This will be framed by current developments in what archaeology shows us about strategies and principles of healing, curing, redeeming, and caring for both living and dead, and the connections and divergences between the physical and the spiritual.

56 HERITAGE AND ARCHAEOLOGY DURING LATE CAPITALISM

**Session theme:** 6. Intertwining archaeology, heritage, and museums  
**Session format:** Regular session  
**Session keywords:** Capitalism, Commodification, Market, Funding, Popularity, Contract Archaeology  
**Session organisers:** Artur Ribeiro (Christian Albrechts Universität zu Kiel) – Zsuzsanna Varga (Aquincum Museum)

SESSION ABSTRACT

In our current age, we have grown accustomed to the fact that it is the market that dictates how we deal with heritage management and archaeology. Contract archaeologists have had to deal with the rapid gentrification of cities and its effects on past realities; museums and institutions have had to commodify heritage so as to appeal to wider audiences and make their work profitable; academic and research institutions have had to jump on the latest popular topics in order to obtain funding; and archaeologists of all sorts have had to oversell and consequently overwork themselves in the hopes of gaining permanent employment. Underlying all this is a late-stage capitalist logic that demands the 24/7 circulation of capital, the constant optimization of the workforce, and the commodification of all aspects of life. Developing late capitalist subjectivities has had several effects. We have lost the capacity to slow down and tell empathetic stories of past peoples and their lives. Everything is now subject to a short term logic, with ideas, facts, and institutions, rapidly becoming “outdated”, and contract archaeologists having to conduct work constantly under urgent conditions. Additionally, the worth of archaeology and heritage has become reduced to measurable values, such as citation indices and number of museum visitors. Overall, late capitalism has affected all aspects of heritage and archaeology in Europe, from students, to contract archaeologists, museum specialists, researchers, and professors. The aim of our session is to explore the absurdities of late capitalism and its effects on heritage and archaeology, and in turn, how these have conditioned peoples’ personal lives (e.g. burnout, constant migration). Finally, although difficult to conceive, we wish to discuss how these effects can be countered and what can be done in response to the demands of late capitalism.

CONTRIBUTION ABSTRACTS

294. THE POLITICS OF AUTHENTICITY IN ARCHAEOLOGY

**Contribution format:** Oral  
**Contribution authors:** Artur Ribeiro (University of Kiel)

One of the marks of our current times is authenticity. This means to not let external influences dictate how one behaves and represents oneself. In practice, this entails evading the consumption of large corporate brands, avoiding mainstream music such as Taylor Swift, and shunning big retailers. More specifically, in archaeology, this has meant a continuous state of producing research that is original, generating new facts as often as possible, and constantly avoiding outdated ideas and theories. Unlike classic capitalism (aka imperial capitalism), late capitalism expects people to be free, dynamic, and authentic. Whereas in earlier stages of capitalism, discipline was enforced onto citizens in order for them to produce, we now live in an age where that discipline is unnecessary. The capitalism of today is not disciplinary, it is seductive. In archaeology, this has meant a workforce that is constantly seduced into finding the most interesting sites, promoting the latest and greatest ideas, and

constantly promoting oneself in the press. This constant state of being authentic has, however, led to its opposite effect: the incapacity to generate anything truly new. The archaeological knowledge of today is one of constant recycling and re-branding of ideas. Rather than a slow and deliberate exploration of the past, we are just in a state of hectic scrambling for the next big thing, without ever truly finding it. Like everything in late capitalism, the economy has found a way to commodify the “new”, and this talk aims to explore how this has affected archaeological knowledge production.

2160. BETWEEN MEMORY AND PROFIT: THE TRANSFORMATION OF MAMULA ISLAND AND THE CHALLENGES OF CULTURAL HERITAGE PRESERVATION IN MONTENEGRO

**Contribution format:** Oral  
**Contribution authors:** Ana Velickovic Kastratovic (University of Belgrade, Faculty of Philosophy)

Montenegro faces significant challenges in the protection and preservation of its cultural heritage, as highlighted by the case of Mamula Island. Despite its rich historical significance, including its role as a 19th-century Austro-Hungarian fortress and a World War II prison camp, Mamula has been transformed into a luxury resort, raising concerns about the prioritization of profit over historical preservation. This transformation reflects broader issues in Montenegro’s legislative and institutional frameworks, which lack adequate policies to safeguard cultural assets. The government’s decision to lease Mamula to a private company for 49 years, despite local and international opposition, underscores the tension between economic development and heritage conservation. Similar trends are evident in other Montenegrin sites, such as the Budva Citadel and a fortress near Petrovac, which have been converted into commercial venues. These developments highlight a regional tendency in the Balkans to favor economic gain over the preservation of cultural and historical values. This presentation will examine the implications of these trends for Montenegro’s cultural heritage, advocating for a more robust legislative and institutional approach to preservation, as well as greater public awareness of the importance of cultural heritage for societal identity and historical memory. The case of Mamula serves as a poignant example of the broader challenges facing cultural heritage conservation in the Balkans and beyond.

2359. WHAT ARCHAEOLOGY DO WE WANT? THE IMPACT OF DEVELOPER-FUNDED ARCHAEOLOGY IN HOW WE DIG, THINK, AND EXIST

**Contribution format:** Oral  
**Contribution authors:** Guillermo Díaz De Liaño (MOLA (Museum of London Archaeology))

Departing from evidence from the UK context, but with the aim of extrapolating and comparing with other places, this paper will examine the myriad ways in which the conditions of commercial archaeology are not only affecting our research methods, but also impacting our very epistemologies, and producing significant changes in our disciplinary cultures. This paper will argue that while our close connection with development might bring some advantages, it also entails numerous risks for our profession, as we increasingly adapt our way of operating to the demands of the commercial environment without realising the degree to which this compromises our ability to conduct good research, contribute towards social wellbeing, and maintain a healthy workforce. It will argue that if archaeology aims to be sustainable, not only at the environmental but at the social and professional level, numerous changes are required, and although some of them might seem far away, as they imply tackling the monsters of late Capitalism, others are within reach, especially if we accept that the solutions to many of the problems in the Western world can only come from the epistemologies of the Global South.

387. ARE WE THERE YET? ASSESSING THE INTEGRATION OF ARCHAEOLOGICAL HERITAGE INTO LOCAL DEVELOPMENT STRATEGIES IN POLAND

**Contribution format:** Oral  
**Contribution authors:** Aleksandra Chabiera (Adam Mickiewicz University in Poznań)

Viewing the local community as a collective entity allows for the balancing of growth pressure with sustainable social development. The social approach includes, but is not limited to the economic side of development. A wealthy community is rooted in a specific space, with a recognized history understood by its residents. Heritage can and should play a role in community development by supporting its healthy, socially sustainable goals. However, the crucial step in this process is to incorporate this approach in strategic documents. Since it is the competence of self-government to set and implement development direction, local administration must include an understanding of monuments social values in the strategies; otherwise, substantial change will not occur. This presentation discusses data from Polish municipalities to analyze whether, and how local strategies incorporate the role of archaeological heritage in local development. The analysis is based on survey conducted during my PhD study. This is the first in-depth study assessing the inclusion of archaeological heritage in the strategic documents across Polish municipalities. A CAWI survey was sent to over 99.1% of them (i.e. 2452 municipalities). With a response rate of approximately 21%, the sample is representative, allowing the results to be generalized to



the entire population of municipalities. To gain a deeper understanding, I also examine selected case studies that highlight effective inclusion of local archaeological resources in strategies. The findings of my research present some good examples, but most importantly, they emphasize the critical need for cooperation among stakeholders. Polish municipalities may have the goodwill to utilize their assets, but in order to do so they must also recognize their social values and learn how to integrate these assets into the communities' life.

### 870. “MONEY MAKES THE WORLD GO AROUND”: THE CABARET OF CULTURAL HERITAGE

**Contribution format:** Oral  
**Contribution authors:** Daniel Evans (Arcadis Consulting Limited)

Today, the bright lights don't read Sally Bowles but draw on the corporate realm's feasting of the capitalist stage. Stepping into the Kit Kat Klub to escape today's reality would be the indulgence of scandal that is not filling in your timesheet; alongside the banning of passive aggressive buzz phrases such as 'per my last email'. In the UK, recent discussion on planning reform specifically to drive an ambitious 1.5 million house builds in this 5-year parliament, is the epitome of late capitalism in the acceleration of production. But to what risk and opportunity to heritage. Heritage professionals strive to improve the quality of life for our clients and community end users of our projects, by bringing to life the stories of the past as part of our projects. Aspects of place-making in master planning and the increasing Social Value agenda are narratives frequently lost in communication of corporate strategies and the drivers of cost and programme. The current rhetoric in the UK is to blame the 'newts and bats' for stopping the capitalist's production harmonies. But how much of this is an umbrella term towards all environmental impact disciplines. This paper will seek to discuss the position of heritage within the current planning system of the UK. The risks we as an industry and individuals, face in the short to medium term but also the opportunities for heritage to become a driver (of some sort) to the capitalist programme- demonstrating our value and worth to clients and the communities we seek to share our stories with.

### 1597. TOWARDS NEW NARRATIVES FOR “ARTAEOLOGICAL” ARTEFACTS TO COUNTERACT THE MARKET (AND LOOTING)?

**Contribution format:** Oral  
**Contribution authors:** Jaime Almansa-Sanchez (CRETUS Universidad de Santiago de Compostela | Asociación Némesis) – Ignacio Rodríguez-Temiño (Asociación Némesis | Conjunto Arqueológico de Carmona)

The market of antiquities can be considered the original sin of archaeology with regard to capitalism. In the beginning of the discipline, the artistic value of heritage stood over the creation of knowledge about the past. Two direct consequences arise from this: On the one hand, the market of antiquities itself, that still today affects the protection of archaeological heritage with crimes against sites and museums. On the other hand, a narrative of treasure and beauty that permeated society up to a point that it even affects professional management. The subsequent conception of archaeology as art (“artaology”) that dominates current narratives, populating museums (and auction houses), tourism flyers (and academic journals), or popular perceptions (and even professional expectations), orbits other aspects of daily practice. Addressing this dissonance might help to understand and counteract these dynamics. What is the actual value of archaeology and archaeological heritage? Can a different narrative help to mitigate the dynamics of the market? How could this new narrative prevail over current capitalism, especially when decades of professional archaeology have yet to make an impact on it? This proposal will address the matter, and explore how a new valuation of archaeological heritage might help in the process.

### 897. HISTORICAL REENACTMENT BETWEEN NATIONALISM AND LATE CAPITALISM

**Contribution format:** Oral  
**Contribution authors:** Zsuzsanna Varga (Aquincum Museum)

Historical reenactors are hardly ignorable players in the interpretation of archaeological legacies and in creating visions of history: they contribute to experimental archaeology and draw in crowds for special museum events, history festivals, and fairs. While they have the potential to bring in multi-vocality, I suggest we look at how reenactors' subjectivities are shaped by late capitalist forces that produce their own focal points and social exclusions. Recently Hungarian reenactors specializing in tenth-century Magyar history have started to pay accentuated attention to detail, which they see as a transition from amateurism to professionalism and as a commitment to historical authenticity. The upscale, however, is also in accordance with late capitalist expectations, such as careful self-styling, the pursuit of Instagram-worthy appearance, and the display of disposable income and time spent making garbs and equipment. So is the phenomenon that where there is reenactment, there is likely to be a museum shop or a historical fair nearby with recrafted archaeological finds for sale – or alternatively these items may be purchased 24/7 online. As sociologist Dorit Geva points out, today in Hungary full national inclusion rests on ethnicity and on the ability to consume (2021), and I interpret reenactment as

running the risk of reproducing such nationalist and neoliberal logics: the pre-modern in technical production is appreciated and consumed, but the question of what happened to pre-modern forms of belonging, sociability, genders, work patterns remains unasked.

### 2171. MAMULA ALL INCLUSIVE

**Contribution format:** Poster  
**Contribution authors:** Ana Velickovic Kastratovic (University of Belgrade, Faculty of Philosophy)

Mamula Island, also known as Lastavica Island, is a small islet located at the entrance of the Bay of Kotor in Montenegro. Historically, it is renowned for the 19th-century fortification built by the Austro-Hungarian Empire, named after General Lazar Mamula. The fort was part of a defensive strategy to protect the strategically significant Bay of Kotor, which served as a key naval base. During World War II, the fort was repurposed by Italian fascist forces as a prison, gaining notoriety for its harsh conditions and the suffering of its inmates. This dark chapter has left a lasting mark on the island's legacy. Today, Mamula Island exemplifies the challenges Montenegro faces in preserving its cultural heritage. Despite its historical significance, the island has been transformed into a luxury resort, raising concerns about the prioritization of profit over the preservation of history. This development reflects broader issues in Montenegro's approach to cultural heritage protection, where economic interests often overshadow the need to safeguard historical and cultural values. The case of Mamula Island highlights the urgent need for stronger legislative and institutional frameworks to balance economic development with the preservation of Montenegro's rich cultural heritage.

### 57 RECONSTRUCTING THE PAST: BIOARCHAEOLOGICAL APPROACHES IN THE LEVANT, MESOPOTAMIA, AND IRAN

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Discussion session  
**Session keywords:** Bioarchaeology, Levant, Mesopotamia, Iran, Multi-Disciplinary Approaches  
**Session organisers:** Matteo Giaccari (Department of Earth Science, Sapienza University of Rome) – Andrea Göhring (Leibniz Laboratory for Radiometric Dating and Stable Isotope Research, Kiel University) – Arkadiusz Soltysiak (Department of Bioarchaeology, Faculty of Archaeology, University of Warsaw)

#### SESSION ABSTRACT

Bioarchaeology, which encompasses the study of human, animal, and plant remains as well as environmental reconstructions, provides a comprehensive framework for understanding the complex interactions between past populations and their environments. Based on often multi-disciplinary approaches, bioarchaeology offers unique insights into how ancient societies adapted to and shaped their environments. The different disciplines inform us about subsistence strategies, ecological resilience, health and disease, mobility, and socio-cultural practices, allowing for a holistic reconstruction of ancient lifeways. The Levant, Mesopotamia, and Iran are regions of immense importance for the development of agriculture, early urbanism, and state formation. The Levant, a major crossroads for human migration and technological diffusion, features early farming communities and rich biodiversity. Iran's diverse ecosystems and highland-lowland dynamics fostered multiple human-environment interactions and supported unique subsistence strategies. Mesopotamia, the cradle of civilisation, provides evidence of early urban societies whose development was closely linked to their manipulation of the landscape through irrigation and agriculture. This session brings together multidisciplinary bioarchaeological research to examine how ancient communities in these regions adapted to environmental pressures such as climate variability and resource scarcity, and how they interlink in complex social and economic networks. Topics include human health and dietary transitions, animal domestication and management, plant cultivation, and environmental change over time. By integrating data from human, animal, and plant remains, landscape reconstructions, and environmental studies, this session will illuminate the complex factors and relationships that shaped ancient civilisations in these key regions, offering new perspectives on their adaptation or resilience.

#### CONTRIBUTION ABSTRACTS

### 934. SPATIAL AND TEMPORAL VARIABILITY OF SUBSISTENCE PATTERNS IN IRAN INDICATED BY STABLE CARBON AND NITROGEN ISOTOPES IN HUMAN COLLAGEN

**Contribution format:** Oral  
**Contribution authors:** Arkadiusz Soltysiak (Faculty of Archaeology, University of Warsaw)



Research on diet and subsistence in Iran using light stable isotopes was not very popular in the past, with only four papers on this topic published before 2025. However, all available published and unpublished data represent 13 sites, with the chronological range from the Chalcolithic to the Late Antiquity. Such a dataset enables some preliminary assessment of spatial and temporal variability in subsistence patterns, which is clearly higher than in Northern Mesopotamia. At some sites located at the alluvial fans, a high level of manuring is indicated by enrichment in  $^{15}\text{N}$ , with relatively low  $\delta^{13}\text{C}$  values. In later periods, more extensive agriculture with a higher contribution of millet produced lower  $\delta^{15}\text{N}$  and higher  $\delta^{13}\text{C}$  values. This variability provides evidence of a flexible economy, with specific adaptations to local environmental conditions in a region that is not very favourable for agriculture, extending between high mountains and arid deserts and therefore forcing specific land management measures in prehistorical and early historical human societies.

**1181. DIETARY PRACTICES AT ABU TBEIRAH: EXPLORING SUMERIAN LIFE THROUGH A MULTI-ISOTOPIC APPROACH ( $\Delta^{66}\text{Zn}$ ,  $\Delta^{18}\text{O}$  AND  $\Delta^{13}\text{C}$ )**

**Contribution format:** Oral  
**Contribution authors:** Matteo Giaccari (Department of Earth Science, Sapienza University of Rome) – Licia Romano (Department Italian Institute of Oriental Studies, Sapienza Università di Roma) – Silvia Soncin – Sofia Panella (Department of Environmental Biology and MAREa, Sapienza Università di Roma) – Francesca Alhaique (Museo delle Civiltà, Rome) – Franco D’Agostino (Department Italian Institute of Oriental Studies, Sapienza Università di Roma) – Klervia Jaouen (Géosciences Environnement Toulouse (GET), Observatoire Midi-Pyrénées (OMP), Toulouse) – Mary Tafuri (Department of Environmental Biology and MAREa, Sapienza Università di Roma)

In the study of ancient Mesopotamia, cuneiform tablets serve as powerful indirect evidence of individual lives. However, their use is limited by their predominantly administrative nature and the perspectives of the elite who produced them and for whom they were intended. Nonetheless, they offer insights into the dietary practices by documenting the rations allocated to specialized workers. Despite this indirect evidence, systematic direct investigations, such as isotope analysis, have been limited only to the northern part of the region, with only one focused on southern Mesopotamia. One of the difficulties encountered in southern Iraq is linked to the nature of the soil, which exhibits high salinity and therefore poor collagen preservation. This is the case at Abu Tbeirah, an Early Dynastic site dated to the second half of 3rd millennium BCE, located about 15 Km SE of Ur (Nasiriya, Dhi Qar province, Southern Iraq). The site has been excavated systematically over the past decade, yielding a significant number of human and animal remains. In addition, Abu Tbeirah is located in an area rich in natural hydrocarbons sources, with most of the archaeological layers containing bitumen artefacts. For these reasons, the bone remains recovered here are prone to post-depositional disturbances that result in the alteration of their organic components (e.g. collagen). In view of these challenges, we apply a multi-isotopic approach, coupling traditional isotopic proxies ( $\delta^{18}\text{O}$  and  $\delta^{13}\text{C}$ ) with innovative techniques ( $\delta^{66}\text{Zn}$ ) to investigate food practices and different types of herd and animal management using the inorganic fraction of skeletal remains (i.e., tooth enamel), as this is less prone to diagenesis. This study represents the first multi-isotopic approach to investigate human dietary habits in an archaeological site from southern Mesopotamia involving zinc isotope ratios and demonstrate a differential access to animal foods within the population buried at Abu Tbeirah.

**1924. FROM TEETH TO TALES: INVESTIGATING HISTOLOGICAL, PROTEOMIC, AND GEOCHEMICAL SIGNATURES IN DENTAL REMAINS FROM JIROFT NECROPOLISES (IRAN, 3RD MILLENNIUM BCE)**

**Contribution format:** Oral  
**Contribution authors:** Claudia Stefani – Alessia Galbusera (Department of Odontostomatological and Maxillofacial Sciences, Sapienza University) – Leonardo Tauro (Department of Geosciences, University of Padua) – Szymon Mianowski (Polish Academy of Science, Kraków | Department of Odontostomatological and Maxillofacial Sciences, Sapienza University) – Federico Lugli (Department of Chemical and Geological Sciences, University of Modena and Reggio Emilia) – Robert Anczkiewicz (Polish Academy of Science, Kraków) – Luca Bondioli (Polish Academy of Science, Kraków | Department of Cultural Heritage, University of Padua) – Nasir Eskandari (Department of Archaeology, University of Tehran, Tehran, Iran) – Massimo Vidale (Department of Cultural Heritage, University of Padua) – Alessia Nava (Department of Odontostomatological and Maxillofacial Sciences, Sapienza University)

The study of Jiroft culture (3rd millennium BCE, southeastern Iran) faces significant challenges due to looting, which has seriously compromised the archaeological record. Nevertheless, a number of dental remains recovered from Hookerd, Rigambar, and Mahtoutabad provide a direct glimpse into the biological and social life of

this ancient communities. Indeed, teeth, due to their durability, contain a permanent record of biological markers helpful for understanding growth patterns, physiological stress events and human-environment interactions. In archaeological contexts where skeletal remains are poorly preserved, dental remains become the main tool for reconstructing life histories. This study examines 13 dental specimens using a multi-analytical approach to explore growth trajectories, health, diet and mobility during infancy and childhood. Histological examinations of enamel microstructures provided insights into growth patterns and physiological stress event prevalence. Proteomic analyses via liquid chromatography-tandem mass spectrometry (LC-MS/MS) enabled sex determination through the identification of amelogenin isoforms in dental enamel. Additionally, histologically controlled laser ablation inductively coupled mass spectrometry (LA-ICP-MS) of trace elements revealed dietary transitions during infancy, while laser ablation multi-collector ICP-MS of strontium isotopes ( $^{87}\text{Sr}/^{86}\text{Sr}$ ) offered evidence of individual mobility at the highest temporal resolution. Despite the challenges posed by diagenesis and sample fragmentation, our integrated analytical approach provided valuable insights, albeit with some limitations. Methodological adjustments helped mitigate some diagenetic alterations, underscoring the potential value of a multifactorial approach in analytical techniques where applicable. These findings offer a glimpse into the multifaceted aspects of individual lives, shedding light on a range of biological and cultural factors that contribute to the life history of this ancient population.

**2278. GENETIC MAKE-UP AND DEMOGRAPHIC INSIGHTS IN NORTHERN MESOPOTAMIA: ANCIENT DNA ANALYSES FROM THE BRONZE TO IRON AGE TRANSITION**

**Contribution format:** Poster  
**Contribution authors:** Raffaella Bianco (Max Planck Institute of Evolutionary Anthropology | Max Planck Harvard Research Center for the Archaeoscience of the Ancient Mediterranean) – Xiaowen Jia (Max Planck Institute of Evolutionary Anthropology | Max Planck Harvard Research Center for the Archaeoscience of the Ancient Mediterranean | Institute for Pre- and Protohistoric Archaeology and Archaeology of the Roman Provinces, LMU) – Alexander Pruß (Institute of Ancient Studies, Johannes Gutenberg-University Mainz) – Alexander Tamm (Institute of Church History, Friedrich-Alexander-University Erlangen-Nürnberg) – Carsten Witzel (Institute of Biology and Chemistry, University of Hildesheim) – Dirk Wicke (Institute of Archaeological Sciences, Goethe University Frankfurt) – Lutz Martin (Vorderasiatisches Museum, Berlin) – Önhan Tunca (Department of Sciences of Antiquity, Liège) – Johannes Krause (Max Planck Institute of Evolutionary Anthropology | Max Planck Harvard Research Center for the Archaeoscience of the Ancient Mediterranean) – Philipp Stockhammer (Institute for Pre- and Protohistoric Archaeology and Archaeology of the Roman Provinces, LMU | Max Planck Institute of Evolutionary Anthropology | Max Planck Harvard Research Center for the Archaeoscience of the Ancient Mediterranean)

The Mesopotamian Bronze Age (approx. 3100-1180 BCE) witnessed the formation of large urban centers with increasingly complex societies which formed into states with political influence as well as a flourishing trade with neighboring cities and states. Over the time span from the Bronze Age deep into the Iron Age, the region of present-day North-Eastern Syria was part of different states and empires and was finally incorporated into the Assyrian Empire in the 9th century BCE. However, due to the scarcity of ancient DNA data from this area, the effects of these profound societal shifts on human mobility and demographics remain unknown. This is mainly due to poor molecular preservation expected from the prevalent climate in the region. Thanks to recent advancements in ancient DNA technologies, we could recover genomic data and generate genome-wide SNP data from a total of 62 individuals from four different sites: Tell Knedig (n=19), Tell Chuera (n=27), Tell Abu Hgaira (n=5), and Tell Amarna (n=11), all of them located in northern Syria and presenting the largest genetic dataset available for Bronze Age Mesopotamia so far. Population genetics results show that there is intraregional genetic continuity from the Bronze Age to the Iron Age, which challenges historical accounts on great human mobility for the region.

**58 DIGITAL TOOLS FOR SURFACE ANALYSIS OF ARCHAEOLOGICAL ARTIFACTS: INTEGRATING QUALITATIVE AND QUANTITATIVE APPROACHES**

**Session theme:** 3. Exploring methods in research, education and communication  
**Session format:** Regular session  
**Session keywords:** surface analysis, digital archaeology, technological study, material culture, methodology  
**Session organisers:** Giusi Sorrentino (Ca’ Foscari University of Venice) – Simon Radchenko (University of Stavanger)



SESSION ABSTRACT

The study of surface modifications—such as wear traces, engravings, cut and perforation marks, graffiti, butchering marks, gnawing marks, and technological traces—on various archaeological findings is essential for understanding the production technology, use, and function of archaeological artifacts. Traditionally, qualitative approaches based on various imaging techniques have been central to this research. However, introducing digital tools revolutionized the field and fostered the rapid development of quantitative methods. These two approaches — qualitative and quantitative — are often perceived as dichotomic: the former relies on expert interpretation and emphasizes descriptive aspects, offering cultural and contextual insights; the latter, on the other hand, provides numerical data for objective measurements of artifacts geometry and surface texture. While these approaches may appear distinct, and objectivity is often pursued at the expense of qualitative input, their synthesis is crucial for a more comprehensive understanding of an artifact’s use and life history. Rather than being mutually exclusive, qualitative and quantitative methods complement each other. For example, 3D models created via scanning, photogrammetry, or confocal microscopy provide detailed imagery for qualitative interpretation while simultaneously yielding numerical data for quantitative assessment. Moreover, each approach can scaffold the other, offering new interpretive clues and directions. Combining qualitative insights with quantitative data enables validating results, refining hypotheses, and gaining a more nuanced understanding of an artifact’s biography. This session explores the integration of qualitative and quantitative approaches in surface analysis, focusing on modifications involving material removal or loss, including but not limited to those produced by chiseling, carving, scratching, grinding, and other means of reduction. We invite methodological contributions as well as case studies from all areas of archaeology and welcome studies on bone, rock, antler, clay, wood, and any other surfaces’ modifications on a broad chronological span from prehistory to the present.

CONTRIBUTION ABSTRACTS

1444. TOO MANY THINGS WE DON’T KNOW: PROBLEMS AND SOLUTIONS IN WORKING WITH THE ENGRAVED SURFACES’ REFERENCE COLLECTION

**Contribution format:** Oral  
**Contribution authors:** Simon Radchenko (University of Stavanger)

Whether qualitative or quantitative, our understanding of surface modification techniques derives from comparing archaeological data with what we think surface modification marks look like. This knowledge is not granted but is obtained in laboratory research and numerous experimental sessions. Indeed, experimental data yield great potential for providing reference datasets during the technological assessment of various archaeological materials. Moreover, given the more widespread material types used throughout prehistory (such as bone, antler, flint, and clay), it seems possible to apply these references consistently on a larger scale instead of using them for specifically designed research. Out of all types of data, 3D models stand out as capable of providing the widest variety of qualitative and quantitative data and translating them — quantifying the visual or visualizing the numbers. Moreover, it is by now the most informative way to share such data and make them useful outside of the scope of a particular research effort. Therefore, 3D models are gaining momentum as a comparison tool between archaeological artifacts and experimental replication. However, using them this way faces various obstacles, from administrative to research-related: data management and FAIRness, nuances of data acquisition techniques, the tight connection between the design of the experiment and the nature of quantifiable data, and various quantification methods. On the other hand, applying 3D to bridge archaeological and experimental data opens new analytical perspectives. It enhances the research process, allowing the oscillation between different data sources in the most possibly informed manner. This talk will share reflections on creating and using the pilot 3D database of experimental and archaeological data to study the engraved surfaces. It outlines the pros and cons of the approach, highlighting issues to be solved in the future and presenting results that are effectively applied in the present.

2016. RECONSTRUCTING MEDIEVAL CRAFTSMANSHIP: METHODOLOGIES FOR DOCUMENTING AND ANALYZING TECHNOLOGICAL TRACES IN STONE EPIGRAPHS

**Contribution format:** Oral  
**Contribution authors:** Giulia Previti – Beatrice Luci (Sapienza University of Rome, Department of Ancient Sciences) – Salma Kusumastuti (Universitas Gadjah Mada, Indonesia, Department of Archaeology | Sapienza University of Rome, Department of Ancient Sciences) – Luca Malatesta (Sapienza University of Rome, Department of Environmental Biology) – Cristina Lemorini (Sapienza University of Rome, Department of Ancient Sciences)

The presentation investigates technological traces in medieval stone epigraphs to reconstruct the methods, tools, and gestures used by artisans. It aims to analyze the techniques behind these inscriptions, highlighting skills,

challenges, and interactions between craftspeople and stone, as well as territorial differences. Experimental archaeology enables the creation of a reference collection of replicated inscriptions, providing a comparative framework for technological trace analysis. By integrating experimental archaeology with traceological analysis, this research introduces a novel methodology for epigraphic studies through qualitative and quantitative approaches. A key contribution is the use of micro-photogrammetry as a non-invasive, non-destructive documentation technique, particularly valuable for fieldwork. This method enables high-resolution, meso-scale recording of inscriptions, even on immobile surfaces, common in epigraphic studies. Detailed 3D models generated through micro-photogrammetry facilitate further analysis via Digital Elevation Models (DEMs), processed in GIS platforms to extract data on surface roughness and slope profiles. Both qualitative and quantitative analyses are applied to interpret technological traces, including fatigue and abrasive wear. These traces reveal information on the direction, depth, and angle of engraving, shedding light on artisans’ techniques and challenges. Stereomicroscopy – both in transmitted and reflected light – and micro-photogrammetry allow a detailed qualitative assessment of craftsmanship. Quantitative methods refine the analysis by providing precise insights into the engraved surface topography. They identify variations in execution quality, distinguishing smoother strokes from more complex sections with directional changes or rounded extremities. Moreover, slope analysis clarifies tool orientation and movement, enabling the visualization of trace profiles and validating qualitative observations.

699. IDENTIFYING THE RAW MATERIAL OF THE TOOLS USED TO INCISE THE ANCIENT MAYA SCRIPT ON A JADE CYLINDER FROM TIKAL

**Contribution format:** Oral  
**Contribution authors:** Juan Melendez (Archéologie des Amériques UMR 8096 – CNRS / Université Paris 1, Panthéon-Sorbonne) – Emiliano Melgar (Museo del Templo Mayor)

During the last decades, advances in the decipherment of glyphs that comprise the logosyllabic ancient Maya writing system have transformed our understanding of calendrical cycles but also refined the complex meaning of certain notions within the sociopolitical and ideological spheres. Ancient Maya scripts were written on numerous surfaces, either painted on bark paper codices, ceramic vessels, and murals, or carved on wood, stuccoed surfaces, shells, bones, and soft stones such as limestone. Moreover, we find scripts sculpted on rigid greenstone (e.g., jadeitite) items, the latter considered as precious, symbolically loaded, and valued by the Maya. While some suggestions have been brought forward by scholars regarding the nature of the raw materials (hereafter RM) of the tools used to incise the glyphs written on several portable greenstone items, this remains to be proven. To fill this knowledge gap, we endeavored to identify the RM of the tools used to incise sections of four of the twelve glyphs written on the lid of a mosaic cylinder (hereafter GMC) through qualitative traceological approaches. This GMC was found within the tomb of a ruler buried during the first half of the mid-eighth century CE below the iconic Structure 5D-1 in Tikal, Guatemala. Metallurgy was not a practice developed by Maya artisans at that time, and therefore the potential RM of the tools used to incise the script is limited to a certain number of rocks. These include sedimentary (e.g., chert; locally found in Tikal), metamorphic (e.g., jadeitite; sources located ~ 200 km from Tikal), and even volcanic rocks (e.g., obsidian; closer sources located ~ 250 km from Tikal). Finally, following a relational ontology approach we also argue that the potential tools were likely entities awarded with personhood capable of reciprocating and mediating between the modified agent (i.e., GMC) and the craftsman.

104. TVT – A TOOL FOR TOPOGRAPHY ENHANCEMENT AND DATA GENERATION FOR DEEP LEARNING WORKFLOWS

**Contribution format:** Oral  
**Contribution authors:** Ashely Green – Christian Horn – Rich Potter (Department of Historical Studies, University of Gothenburg)

For shallow and small carvings, like those often seen in prehistoric Swedish rock art, visualisation with traditional landscape and other enhancement methods is still unable to highlight all motifs. We developed Topography Visualisation Toolbox (TVT; <https://tv.t.dh.gu.se/>) to better visualise these types of carvings and generate material that could be used in AI tasks while still requiring moderate computing power. The user interface aims to make the tool accessible to archaeologists and does not require any programming knowledge or a high-power GPU. TVT is still under development with the aim of introducing new tools and features based on feedback from users outside rock art research. This talk will provide an overview of the open-source tool and its potential applications. The core tool in TVT, Topo Vis, generates derives a range of enhanced and basic topographic maps from 3D models and plots them as greyscale and colour images. Topo Vis relies on open-source python libraries, including Open3D, scikit-learn, scipy, and scikit-image, to process the input model(s) into points, create a local relief, and generate and then enhance the topographic visualisations. While the tool was initially developed for rock art panels in West Sweden that have shallow carvings and a pronounced global curvature, it has also been used more widely recently. In rock art research, the visualisations were used to train object detection and semantic segmentation models, which led to the discovery of new motifs, and are now disseminated online though the



Swedish Rock Art Research Archive (SHFA; <https://shfa.dh.gu.se/>). Beyond rock art, TVT has been used in other domains to visualise graffiti in Saint Sophia Cathedral (Kyiv, Ukraine), and to reconstruct erased inscriptions on modern gravestones.

711. INNOVATIVE 3D ANALYSIS OF CHINESE NEOLITHIC POTTERY: INSIGHTS FROM THE TACHIXIGOU SITE

**Contribution format:** Oral  
**Contribution authors:** James Loftus (Institute of Science Tokyo) – Yang Bai – Chen Shan (Liaoning University)

The Tachixigou Site in Liaoning Province, China, is a crucial site linked to the Xinglongwa Culture, one of the earliest Neolithic cultures in Northeast Asia. Occupied approximately 7600–7400 years ago, this settlement provides key evidence of early agricultural practices, social organization, and craft technological innovation. Formally excavated by Liaoning University in 2017, the site has yielded a dozen dwelling foundations and a remarkable assemblage of pottery that reflects a transition toward early specialized craft production, offering unique insights into the social and economic developments of early agricultural communities in the region. However, while qualitative assessments of the pottery are ongoing, little has been done to digitize these vessels and systematically analyze their surface features, which has hindered in-depth research into pottery manufacturing techniques. To address this gap, this exploratory study utilizes advanced 3D surface scanning techniques, including “Morphometric Mapping” and “Sliced Segmental Extraction,” to analyze the pottery surfaces from Tachixigou. These methods allow for the detailed investigation of surface curvature, tool marks, and decorative patterns, aiming to uncover insights into manufacturing techniques, standardization, and the potential emergence of craft specialization. While ongoing, this study highlights the importance of the Tachixigou Site as a case study for understanding Neolithic craft production and the broader social and economy shifts in Northeast China during this period. Furthermore, it demonstrates the transformative potential of integrating digital tools with traditional methods, laying the groundwork for future interdisciplinary research on Neolithic material culture in the region.

314. ANALYSING UPPER PALEOLITHIC GROUND STONE TOOLS THROUGH COMPUTATIONAL MECHANICS MODELS

**Contribution format:** Oral  
**Contribution authors:** Maria Rosaria Marulli – Giusi Sorrentino – Marco Paggi (IMT School for Advanced Studies Lucca)

Analyzing wear and damage on Upper Paleolithic ground stone tools (GSTs) is crucial for understanding Homo sapiens’ daily activities and resource use. Over recent decades, archaeologists digitized and analyzed GSTs using imaging techniques, alongside experimental archaeology establishing replicative collections [1-2]. This study introduces innovative methodologies to investigate GSTs use-wear patterns, relying on cutting-edge computational mechanics models. Building on the findings in [3], two approaches are presented: a finite element (FE)-based digital twin [4] and a multi-scale contact mechanics framework [5]. Developed from 3D photogrammetric reconstructions, the FE digital twin model simulates damage evolution during pounding and grinding tasks, investigating the limits and possibilities to accelerate the time-consuming experimentation done with manual use of GSTs replicas. The contact mechanics-based simulations enhance this analysis by linking macroscale photogrammetric data with microscale profilometric surface maps, enabling detailed predictions of contact areas and pressure distributions. This research offers archaeologists robust tools for analyzing and quantifying GSTs use-wear, refining experimental designs, and contextualizing archaeological evidence. It demonstrates the transformative potential of computational technologies in archaeology, complementing traditional approaches for more comprehensive interpretations.

260. DID NET WEIGHTS PRECEDE BOW-AND-ARROW IN BRAIN EVOLUTION? USE-WEAR FINDINGS SUPPORT NET WEIGHT TOOL USE OF BLOMBOS CAVE “BEADS”

**Contribution format:** Oral  
**Contribution authors:** Silvia Stein (Independent)

My hypotheses that Blombos cave punctured Nassarius shells (72 ya) were net weights, is based on my experience ocean fishing. The close proximity of punctured Nassarius shells to the net style designs inscribed in Blombos cave ochre stones (Wynn, et al, 2024) supports my net weight hypothesis. Use-wear evidence is used to support my shell weight interpretation. Testing my hypothesis requires constructing a replica of the shell weight use of Blombos “beads” on, what I suspect, was a casting net. To sink a net weight below the water line the prehistoric punctured shells need to weigh about 10 grams at each point, perhaps in pairs, and knotted in place (Keegan, et al, 2009). And, the 72 ya Blombos, South Africa, seaside cave “beads from levels CA and CB were more similar to the experimental arrangement with knotted pairs of dorsally joined shells” (Hatton, et al, p. 3). The equal distance between knots holding punctured and coupled shell net bead weights would have improved the shell

weight aerodynamics to spread-out evenly, sink, and exit in unison from the water. “Experimental reproduction of the wear facets suggest that the MSA [Middle Stone Age] shell beads must have been in regular contact with an acid aqueous solution” (Vanhaeren, et al, 2013), which could include, I suggest, sea water (Keegan, et al, 2009). Development of nets and shell net weights might have preceded the early development of the 80 ya bow and arrow (Lombard, 2024). Blombos cave deposits date from 100 ya to 70 ya (Hatton, et al, 2020). The use of the bow and arrow paralleled the enlargement of the precuneus in human brain development (Lombard, 2024, p. 823). And the precuneus is involved in manual manipulation of string and calculating the distance needed in aiming an arrow or a net (Lombard, 2024).

2369. OBJECT BIOGRAPHY AND GROUND STONE TOOLS

**Contribution format:** Oral  
**Contribution authors:** Laura Longo (DAIS, Ca’ Foscari University of Venice) – Clarissa Cagnato – Giusi Sorrentino (Ca’ Foscari University of Venice)

Among the non-flaked lithic industry, ground stone tools (GSTs) occurred in late MIS 3 assemblages (40-25 ka cal BP). Their study disclosed their involvement in the processing of various raw materials spanning vegetal, animal and mineral resources. In order to disentangle the different uses, functional analyses were performed on selected GSTs from the Upper Palaeolithic site of Dzudzuana (Imereti, Caucasus). Use-wear traces, residues characterization and chemoprofiling and quantitative measurement of rock material are supportive of the involvement of these stone tools in the processing of a plant that could have been transformed used as a colourant, as medicine, or indeed for both. The integrated multidisciplinary approach will be discussed: use-wear traces were investigated by means of different microscopes (OM, SEM and 3D confocal), the biogenic residues were imaged and chemo-profiled by means of non-invasive spectroscopic techniques such as  $\mu$ Raman and  $\mu$ FTIR. Finally X-ray Computed  $\mu$ -Tomography aided with synchrotron brilliance (SR- $\mu$ CT) was used to investigate the 3D pore geometry of the stone pebbles. The research design allows to reconstruct the ground stones’ biography, opening new scenarios on the polysemic dimension of percussive tools by identifying wear-traces and use-related biogenic residues, to inferring unexpected behavioral strategies performed by Homo sapiens in the Caucasus during its successful colonization of the Pontic Steppe Belt.

609. BRIDGING THE GAP: A MULTI-SCALE FUNCTIONAL ANALYSIS ON FLAKED AND NON-FLAKED TOOLS THROUGH CONFOCAL MICROSCOPY AND 3D SURFACE TEXTURE ANALYSIS

**Contribution format:** Oral  
**Contribution authors:** Fiona Pichon (Cultural Landscapes, IMF-CSIC | CNRS, UMR 5133 – Archéorient, Maison de l’Orient et de la Méditerranée) – Andrea Zupancich (Diet and Ancient Technology – DANTE laboratory, Sapienza Università di Roma) – Juan José Ibañez (Cultural Landscapes, IMF-CSIC)

In recent years, the field of use-wear analysis on archaeological artefacts experienced and benefited from the integration of a different range of quantitative methods. Among these, confocal microscopy and 3D surface texture analysis have increasingly been employed to examine changes in stone tool surfaces and has proven to be an accurate technique for quantifying use-wear texture. However, its application varies across materials and tool types. In this talk, we will present two complementary perspectives on the use of confocal microscopy and 3D surface texture analysis for the study of use-wear on flaked tools made of flint, obsidian and non-flaked tools made of limestone and basalt, which differ in surface properties, wear formation processes, and analytical challenges. Our approach demonstrates how a quantitative framework can be shared while still accounting for the specificities of each raw material. We discuss the challenges of interpreting numerical surface roughness parameters in relation to functional hypotheses, as well as the need for cross-validation with experimental and contextual data. Through a comparative methodological framework, we demonstrate that integrating high-resolution digital surface analysis across different tool types enhances our ability to infer past tool use and technological choices while bridging the gap between qualitative and quantitative data in functional studies of both flaked and non-flaked tools, highlighting the advantages of a multi-scale approach to use-wear analysis. Our goal is to foster meaningful discussions on methodological standardisation, interpretive challenges, and the broader implications of quantitative methods in functional studies.

822. QUALITATIVE AND QUANTITATIVE ANALYSIS OF LITHIC ARTIFACT SURFACE MODIFICATIONS: EVALUATING THE USE OF MOLDS

**Contribution format:** Oral  
**Contribution authors:** Giusi Sorrentino (Department of Environmental Sciences, Informatics and Statistics, Ca’ Foscari University of Venice) – Marco Paggi (IMT School for Advanced Studies Lucca) – Laura Longo (Department of Environmental Sciences, Informatics and Statistics, Ca’



Foscari University of Venice) – Fabrizio Antonelli (Department of Architecture and Arts, Iuav University of Venice) – Laura Falchi – Elena Badetti (Department of Environmental Sciences, Informatics and Statistics, Ca’ Foscari University of Venice)

The study of lithic industries is central to prehistoric archaeology, with manufacturing traces and use-wear patterns essential for reconstructing artifact life histories. Since the 1970s, silicone-based molds have been widely used to replicate surface textures for microscopic analysis, valued for their fine detail reproduction and dimensional stability. This has enabled both morphological analysis and quantitative measurements using techniques such as profilometry and confocal microscopy. However, despite their widespread use, few studies have rigorously assessed their accuracy in reproducing surface details, particularly their ability to percolate in surface valleys and capture fine textures. Most research has focused on bones, teeth, and flint tools, while their effectiveness on other lithic artifacts, such as ground stone tools (GSTs), remains poorly investigated due to surface unevenness and heterogeneous textures, complicating evaluation from the sampling stage onward. Additionally, the potential impacts of molding, including surface damage and silicone contamination, are difficult to assess. To ensure reliable qualitative and quantitative analyses, these factors need to be studied and quantified. This research applies imaging techniques, morphometric evaluation, CT scanning, and physical-chemical analysis to a reference collection of GST replicas constructed based on archaeological artifacts from various Upper Paleolithic sites, exhibiting diverse lithologies and textures. By evaluating mold replication accuracy and its effects on GSTs, this research will support informed decision-making in archaeological studies of surface modifications, as well as conservation and restoration strategies. This study was performed with the support of SMarT4BioArCH project: Ministero dell’Università e della Ricerca of Italy, Project PRIN2022 2022XX8BRT PNRR, CUP Master B53DZ3014020006. Next Generation EU, is gratefully acknowledged for financial support.

1262. EXPLORING TRACE FORMATION VARIABILITY ON QUARTZ, QUARTZITE, AND SILCRETE: A QUALITATIVE AND QUANTITATIVE APPROACH

**Contribution format:** Poster  
**Contribution authors:** Marzena Cendrowska (University of Bergen, SFF Centre for Early Sapiens Behaviour (SapienCE)) – Francesco D’Errico (Université de Bordeaux, CNRS, Ministère de la Culture, PACEA, UMR5199 | University of Bergen, SFF Centre for Early Sapiens Behaviour (SapienCE)) – Karen Van Niekerk (University of Bergen, SFF Centre for Early Sapiens Behaviour (SapienCE) | University of Witwatersrand, School of Geography, Archaeology and Environmental Studies) – Christopher Henshilwood (University of Bergen, SFF Centre for Early Sapiens Behaviour (SapienCE) | University of the Witwatersrand, Evolutionary Studies Institute)

Quartz, quartzite, and silcrete were commonly used as raw materials in the Middle Stone Age (MSA) in South Africa. This study examines wear traces on these three materials, comparing use-wear pattern formation through qualitative analysis via optical microscopy and quantitative assessment using confocal microscopy. We sourced raw materials within a 30 km radius of Blombos Cave. Quartz and quartzite were readily available nearby, while silcrete required longer-distance transport and knowledge of the high-quality sources. Simple flakes were produced using direct hard hammer percussion. ProvilNovo silicone casts of the working edges were taken and repeated halfway through each experiment. We conducted experiments dedicated to working bone, hide and wood, as well as butchering, scraping ochre, cutting reeds, and peeling tubers. Some activities involved variations in the materials used. In total, we performed over 50 experiments spanning 40+ hours and approximately 100,000 cutting or scraping motions. Wear traces were analysed using a metallographic Motic BA310MET-H (magnifications 50–500×) and a confocal MarSurf CM Mobile (160 S, 100× lens). On a qualitative level, we assessed the variability of trace formation based on the materials worked and compared the appearance of both micro and macro traces across the three rock types. Furthermore, we evaluated the effectiveness and precision of both microscopy methods in locating and documenting use-wear traces on quartz, quartzite and silcrete. Use-wear quantification was conducted by measuring high-resolution surface topography (20 areas per experimental piece at 160×160 μm). Roughness parameters (defined in ISO 25178), scale-sensitive analysis, and furrow dimensions were tested to classify and distinguish use-wear traces. By integrating qualitative and quantitative data, our results provide new insights into wear pattern formation and recognition on archaeological artefacts.

59 CRAFTING IDENTITY: A MULTIDISCIPLINARY APPROACH TO THE RELATIONSHIP BETWEEN MATERIAL CULTURE AND GENDER IN THE MEDITERRANEAN FROM PREHISTORY TO US

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Regular session  
**Session keywords:** Craft Activities, Social Identities, Gender Socialization, Gender Roles, Mediterranean,  
**Session organisers:** Carmen Ramírez Cañas (University of Seville, Department of Prehistory and Archaeology) – Nina Ferrante (Sapienza University of Rome) – Violeta Moreno Megías (University of Seville, Department of Prehistory and Archaeology) – Patricia Rosell Garrido (INAPH- University of Alicante) – Francisco Gomes (UNiarQ - Centre for Archaeology of the University of Lisbon)

SESSION ABSTRACT

The Mediterranean has historically been a crossroads of exchange and interaction, where enduring traditions have coexisted with a continual openness to new influences. The material bases of such processes have been intensely investigated, but one blind spot in this research has only recently started to be systematically addressed: the interplay of gender relations and roles and economic activities. It is a well-known fact that the production and use of objects – whether in pottery, metal, glass, stone, textiles, or other media – played a crucial role in shaping and expressing social identities, including gendered identities. But, conversely, how did the workings of those identities impact the changing configuration of the craft activities which produced those objects? In order to further ongoing work addressing this topic, this session invites contributions from various archaeological, anthropological, and material science perspectives to examine how craft production, artisanal practices, and the materiality of objects were embedded in the negotiation and performance of gender identities. We aim to highlight case studies from different Mediterranean cultures and regions, focusing on the technological, social, and symbolic dimensions of craft production. Key questions include: Were craft activities associated with specific gender roles? How did the transmission of craft knowledge and skills contribute to reproducing (or challenging) gender norms? How did access to certain materials and techniques influence the construction and display of gendered identities? What does the archaeological record reveal about the intersections of gender, power, and production in these societies? By bringing together a diverse range of methodological approaches, including archaeometry, bioarchaeology, ethnoarchaeology, and gender theory, this session will contribute to a deeper understanding of how material culture and gender interacted in the formation of social identities during this period. We aim to foster interdisciplinary dialogue and promote new research directions that challenge traditional gender dichotomies in the archaeological record.

CONTRIBUTION ABSTRACTS

424. TEXTILE PRODUCTION, GENDER, AND THE FABRIC OF BRONZE AGE SOCIETY IN SOUTHERN PORTUGAL: INSIGHTS FROM THE TRANSTEXTEC PROJECT

**Contribution format:** Oral  
**Contribution authors:** Catarina Costeira (Uniarq - Centre for Archaeology. University of Lisbon | Sintra Municipality) – Francisco Gomes (Uniarq - Centre for Archaeology. University of Lisbon) – Ricardo Basso Rial (Universidade de Granada) – Nunes Carina (Faculdade de Letras, Universidade de Lisboa) – Linda Melo (Uniarq- Centre for Archaeology. University of Lisbon) – Nelson Almeida (Universidade de Évora) – Cleia Detry (Uniarq- Centre for Archaeology. University of Lisbon) – Eduardo Porfírio – Sérgio Gomes (CEAACP - Centro de Estudos em Arqueologia, Artes e Ciências do Património da Universidade de Coimbra)

In recent years, research on textile production in the Southern Portuguese Pre- and Protohistory has progressed considerably. Advances regarding the study of production technology have been coupled with the first explorations of the economic and social role of textile activities between the Late Neolithic and the Iron Age. However, the Bronze Age remains a significant blind spot in such studies. Regional textile production for this period, which is now recognized elsewhere in Europe and the Mediterranean as the time of a “textile revolution” with the diffusion of wool and the attending shifts in technology, economy, and aesthetics, remains poorly understood. With the goal of overcoming this gap, a new project – ‘Exploring transitions in textile technologies and economies in the long 2nd millennium BCE (2200 – 700 BCE): the Southern Portuguese territory as a case study’ (TransTexTec) – was launched. The project combines material studies, focusing especially on textile tools, zooarchaeological studies, deploying innovative techniques to trace sheep husbandry practices, and bioanthropological studies, focusing on dental and skeletal markers of textile activities. This contribution will present the state of the art regarding Bronze Age textile production and showcase the preliminary results of the project. In particular, it will focus on



the issue of the identity, social status and role of textile craftspeople by systematically reviewing the evidence of textile tools in funerary contexts, as well as the bioanthropological markers for textile activities. This evidence points to a central role for craftswomen in textile production, highlighting the often overlooked economic and social role of women during this period, and somewhat redressing the traditional focus on male-attributed craft activities, such as metallurgy. Future research avenues to understand the Bronze Age textile value chains, and thus the economic impact of women’s work, will also be outlined.

**757. “RAZORS” FORM IRON AGE ETRURIA: A RE-EXAMINATION OF THEIR FUNCTION AND SOCIAL SIGNIFICANCE**

**Contribution format:** Oral  
**Contribution authors:** Christina Monroe (University of Oxford)

The bronze, strongly curved blades, referred to as lunate “razors,” found in Early Iron Age (EIA) and Orientalizing Period tombs in Etruria and Central Italy have commonly been used to assign the male sex (and, thus, a gender) to the deceased. As the name implies, these objects have been assumed to be hair (usually facial hair) removal tools. However, lunate razors have been found with burials that have been identified as female through other grave goods, and the curving of the blades would not have been very conducive to shaving a semi-flat surface. Furthermore, the iconography on the razors shows images of axes, animals, and human-animal interactions like hunting, suggesting that the razors were linked to the world of hunting and animal management. Thus, due to inaccurate gender assumptions and the tendency to group lunate “razors” with razors of other shapes, it is timely to reassess their function and social significance. I propose that the lunate razors were instead mainly used for cutting animal hides, probably during leatherworking. Although no primary evidence is available for the function of lunate razors in EIA Etruria, I found evidence depicting lunate knives being used for leather cutting in paintings from tombs of Ancient Egypt (1450–1190 BCE) and on an Attic black-figure amphora (c. 500 BCE). Also, lunate knives have been found with other leatherworking tools from La Tène, Switzerland (c. 300 BCE) and a lunate knife was found in a tannery in Pompeii, Italy (c. 79 CE). Thus, the iconographical and archaeological evidence—showing lunate blades being used for leatherworking in different cultures that span about 2000 years—could indicate that lunate razors should be renamed lunate knives and that they were meaningful objects owned and used by (and then buried with) young and old men and women.

**1705. WHO CAME FIRST: FEMALE GENDER CONSTRUCTION OR TEXTILE PRODUCTION? INTERTWINING SOCIETY AND WORK IN THE PROTOHISTORY OF SOUTHEASTERN IBERIA**

**Contribution format:** Oral  
**Contribution authors:** Patricia Rosell Garrido (Inst. Univ. de Investigación en Arqueología y Patrimonio Histórico-INAPH (University of Alicante))

Textile activity is one of the main productions and tasks that every culture needs, as it is fundamental for clothing the group and for obtaining other types of products that help in day-to-day life and for fitting out homes. The evolution of this activity starts from a work of self-sufficiency for the family itself until it reaches the weight of specialised work and production that requires precise management to obtain the best textile products, optimise the production chain and expand the economy and market of the communities. This is what we observe happening in the Iberian Culture during the Protohistoric period in the southeast of the Iberian Peninsula. Thanks to the study of 9 sites of different typology and chronology (6th-5th to 2nd centuries BP), it has been possible to locate the spaces and instruments of this textile activity in order to get to know it and understand its socio-economic value. At this point, the female figure stands out, as both in the classical written sources and in the archaeological remains themselves, the close link between women and this work and the important development of the activity over time can be seen. Thus, from the 4th century BP onwards, it emerges as an extremely important task for these communities and, to this end, the accumulated female knowledge and the transmission of this information in their own spaces and networks of contact is what allows such a high level of production to be developed. At the same time, this analysis allows us to understand how also, due to this relationship, women create and ratify their Iberian feminine gender through this work, observable thanks to the iconographic scenes in which they appear developing this activity or carrying these instruments.

**1361. CRAFTING IDENTITY INSIDE GOLD THREADS. TWO CASE STUDIES TO UNDERSTAND LOMBARD SOCIETY THROUGH TEXTILE AND EXPERIMENTAL ARCHAEOLOGY**

**Contribution format:** Oral  
**Contribution authors:** Lorena Ariis (Independent)

The funerary archeology of the Lombards in Italy has highlighted many aspects of the material culture and identity of the community. The burials of the first generation of Lombards in Italy indicate the multicultural component of the people who emigrated from Pannonia to Italy. In the Early Middle Ages there was also a lot mobility amongst

women through mixed marriages and in the female monasteries. Women of different ethnic groups brought different customs and types of weaving and embroidery into the community. Some aspects of crafting identity emerged from the funerary remains of gold threads, the only surviving evidence directly connected to textiles. Various technical aspects of weaving and embroidering with gold thread suggest that the different methods of production belong to personal cultural traditions. The remains of gold thread in Italian Lombards burials from the point of view of the thread used is under-researched area. In this study, two cases will be presented from the Lombards graves of Cividale del Friuli, a woven gold lamella and the tiny tubular gold beads. Through the experiments, materials very similar to the originals in size and weight were obtained using golden aluminum, a material compatible with gold in terms of physical characteristics. The materials were used in the reconstruction of textile artifacts, such as a woven sleeve edge and an embroidered funeral veil. The textile experiments can also support interpretations about the organization of women’s crafts in Lombard society.

**446. HOLY POTS! WOMEN, WORSHIP, AND THE ART OF OFFERING**

**Contribution format:** Oral  
**Contribution authors:** Marcella Boglione (École Pratique des Hautes Études, Paris | Univeristät Bern)

This study examines the relationship between material culture, gender, and religious practice in the Greek colony of Himera, with a particular focus on the role of pottery in shaping women’s ritual experiences. While craft production and artisanal activities have long been recognised as integral to ancient Mediterranean societies, their connection to gendered identities within religious contexts remains underexplored. This paper investigates how the presence and absence of specific ceramic forms in sanctuaries reveal the ways women engaged with material culture to construct social and religious identities. By analysing the selection, deposition, and use of ritual objects, this study considers how materiality influenced the negotiation of gender roles and communal memory. It explores whether certain craft practices were gendered and how access to specific objects and techniques shaped religious expression. Were these artefacts passive ritual tools, or did they actively contribute to the performance of gendered identities. Drawing on archaeological, anthropological, and gender theory perspectives, this paper situates women’s religious materiality within broader discussions on craft production and social dynamics in the ancient Mediterranean. In doing so, it offers new insights into how ritual, craft, and gender intersected to define individual and collective identities.

**1819. RELATIONSHIPS BETWEEN GREEK POTTERY PRACTICES, TECHNOLOGY, AND GENDER IN EARLY IRON AGE ITALIC COMMUNITIES AT THE DAWN OF ‘GREEK COLONIZATION’**

**Contribution format:** Oral  
**Contribution authors:** Anna Maria Desiderio (Umr 7041 ArScan) – Arianna Esposito (Université Bourgogne Europe, ARTEHIS)

The Italian peninsula during the Iron Age offers a privileged setting for investigating the relationship between the archaeological ceramic record and the negotiation and representation of gender roles. Previous studies have shown that the growing system of relationships, exchanges and widespread mobility affected the entire central and western Mediterranean from the 9th to the 7th century BCE. Within this framework, early Iron Age Italic communities underwent crucial social and economic changes. Interactions between the Italian peninsula and Greece are well documented in historical and archaeological literature. The transmission and appropriation of pottery is a crucial tool in the analysis of socio-economic dynamics. We aim to focus on wealth consumption and on Greek Geometric pottery found in Italy, which dates no later than MGII (775/750 BC). Our analysis seeks to examine the relationship between local pottery traditions and the evolution of Greek or Greek-style pottery in the Peninsula. Are these ceramics part of social strategies that reflect established practices? Can recurrent forms be identified? How are local productions and the technological changes they entail related to the maintenance and reproduction of social groups and power relations? Gender, crafts, and technology are socially embedded practices. Do we observe the same choices in prominent male and female tombs? Following the perspective of archaeological and anthropological works, this contribution aims to explore how gendered practices and constructions were intertwined with craft and economic innovations to achieve particular social goal. Our analyses point to a complex link between gender roles, local agency, technological change and external cultural patterns by specific social trajectories.

**101. GENDERED LABOUR, FEMALE AGENCY AND POTTERY PRODUCTION IN MODERN AND CONTEMPORARY CATALONIA: SOME CONCERNS ABOUT THE MATERIAL APPROACH**

**Contribution format:** Oral  
**Contribution authors:** Esther Travé Allepuz (Universitat de Barcelona) – Sonia Medina Gordo (Universitat de Barcelona | Centre d’Estudis Martorellencs) – Joan Vicens Tarré (Universitat de Girona)

Written records rarely identify women explicitly as “potters,” with the title invariably attributed to men, reflecting



a longstanding gender bias in historical sources. This discrepancy belies the reality of artisanal production, where women contributed significantly to pottery making, albeit in roles often regarded as auxiliary. Ethnoarchaeological evidence from Catalonia, alongside testimonies from present-day potters who recall the pottery practices of their families, attest to the numerous contributions women made to the chaîne opératoire. From gathering clay to firing the kiln, the production process involved multiple actors, with women frequently tasked with adding adornments—such as handles or spouts—to pre-formed vessels. This complex division of labour raises important questions about how material remains, apparently devoid of explicit gender markers, can be interpreted to uncover women’s contributions. Through extensive research across diverse sources, we have developed a data-rich corpus that allows for an intersectional analysis of artisanal practices and their gendered biases, identifying pottery workshops and the family members who ran them, along with some of the products that are still preserved today. Using deep mapping techniques, we explore the spatial and diachronic mobility of potters (both male and female) and their families. Migration patterns, such as young couples relocating to major production centres, suggest that women played a role not only in maintaining or transmitting but also in shaping pottery traditions. Our contribution invites a methodological reflection on how to overcome gender biases inherent in both written and material sources. Can we identify “female hands” in the pottery housed in our museums or recovered from our archaeological excavations? By integrating written records, archaeological finds, and 3D reconstructions, this paper argues for intersectional approaches to re-examine artisanal economies and challenge traditional narratives of gendered labour division.

2291. LIKE A VIRGIN? CRAFTING WOMEN’S IDENTITIES IN IRON AGE SOUTHERN IBERIAN SANCTUARIES

**Contribution format:** Oral  
**Contribution authors:** Carmen Ramírez Cañas (Department of Prehistory and Archaeology, University of Seville)

Terracotta figurines constitute the widest range of female representations in the Phoenician-Punic societies of the Western Mediterranean. This study examines the relationship between material culture, gender, and religious practices that took place in some sanctuaries of the southern Iberian Peninsula during the Iron Age, with a particular focus on a very characteristic craft production: female terracottas. These offerings served not only as offerings to the gods but also as means of defining collective identity. As ex-votos, they facilitated personal and communal connections, establishing a relational identity between people and terracottas. The production and corporeality of these figurines highlight how gender differences were perceived and adjusted through bodily transformations, linking gender construction to other factors such as rank and age. In this sense, the creation of social identity is shaped by the interplay of objects and gestures. By applying gender theory to archaeological material, this work examines the religious materiality associated with the female sphere, within broader discussions of craft production and social dynamics. It offers new insights into how ritual, craftsmanship, and gender converge in the construction of identities. Future research avenues will also be outlined to understand the active agents involved in the production of these terracottas during the Iron Age and, thus, the economic impact of women’s work in this context.

1969. MATERIAL CULTURE AND GENDER IN EARLY IRON AGE INLAND IBERIA THROUGH THE PACER PROJECT

**Contribution format:** Oral  
**Contribution authors:** Juan Jesús Padilla-Fernández (Universidad de Salamanca)

This proposal aims to present the Pottery landscapes during the Early Iron Age in the inland of Iberia (PACER) Project. This project intends to explore different ways to understand ceramics and their technology as social issues and, therefore, as a means to articulate and express specific ontologies and social codes. This breaks with the general perception that ceramics have today in archaeology. This perspective does not assume a separation between ceramic objects and those who create them. It understands that archaeological works on technology must analyse the social processes that operate on a micro-scale and not only describe the explicit set of prehistoric activities of a context-given society. In this case, the concepts of ceramics and society are assumed to be equivalent, as both are products of the same social patterns. Based on these approaches, this investigation aims to reinterpret in a novel way the different networks of relationships and connectivity of the First Iron Age. The central starting hypothesis honestly believes that the world in that period would be much more complex and heterogeneous, comprising highly connected communities structured through multiple ties of reciprocity. The distinction of several ceramic traditions, with different proportions and in contemporary archaeological sites, would help confirm the existence of heterarchical relationship regimes at the beginning of the Iberian Peninsula Protohistory. Depending on these, specific communities could cooperate, sharing territories and a series of expressed cultural patterns, culture, etc., based on equality. It is possible that potters (most of them women) played a central role, acting as itinerant artisans, accompanied by their ideas and belongings, in the articulation of fluid schemes of reality based on network-organized systems. The search for alliances and strengthening of

power shares would foster a complex world characterised by the movement and constant contact of people and objects at different levels.

855. ENGENDERED DIVISION OF LABOR IN NEOLITHIC AEGEAN TEXTILE PRODUCTION

**Contribution format:** Poster  
**Contribution authors:** Gerasimoula Ioanna Nikolovieni (Brown University)

Gender studies in the Neolithic Aegean (approximately 7000 -3000 BCE) focus on how Neolithic communities have conceptualized, constructed, and expressed gender roles and identities. Archaeology of gender draws data from archaeological assemblages and the representation of the human figure through clay figurines in order to discuss women’s role in society. Affected by modern notions of what the “domestic” sector consists of and its role in socioeconomic changes, as well as women’s role in the ritual sphere, certain craft production has been associated with women. In particular, pottery and textile production, alongside food processing and preparation, has been considered “women’s work” by both academic literature and popular media. This paper is a preliminary discussion of engendered divisions of labor in textile production in Neolithic Aegean communities. This work primarily looks at how normative interpretations of engendered divisions of labor in textile production were established and questions whether textile production activities in the Neolithic communities of the Aegean were associated with specific gender roles.

60 RESEARCH COLONIALISM AND SOCIAL INEQUALITY AT FRONTIERS AND FRONTLINES

**Session theme:** 4. De nobis fabula narratur: archaeological practice and a profession in flux  
**Session format:** Session with keynote presentation  
**Session keywords:** colonialism, inequality, critical reflection, conflict, frontier,  
**Session organisers:** Simon Radchenko (University of Stavanger) – Dmytro Kiosak (Leibniz-Zentrum für Archäologie (LEIZA))

SESSION ABSTRACT

The rise of international transdisciplinary projects highlighted different roles and levels of agency that scholars with different backgrounds can have — from passive legitimation of territory-specific data to active involvement in the project design. Archaeological research is still marked by the colonial tendencies rooted in the scholars’ background that creates frontiers between Europe and the rest of the world or between Western and Eastern Europe. Colonialism can express itself in appropriating cultural heritage objects, the patronizing attitude, the policies regarding authorship and roles in the project, and the distribution of payment and praise. As long as international projects do not aim to overcome these inequalities, the gaps between “data deposits” and research centers will continue to grow. Colonial tendencies are more visible in projects in conflict areas such as Ukraine or Syria, where the urge to act prevails over the inclusive research design. They revealed a need for reflection on making heritage preservation activities fruitful in the long run instead of producing a short-term output. This session will discuss colonial trends and inequalities in archaeology and search for a way to conceptualize and reduce them. Taking the reflexive approach as a background, we are welcoming both theoretical and case-based contributions on:

- Social, economic, and agency inequalities in academia in general and archaeology in particular;
- Unequal access to producing the interpretation of archaeological data between scholars with different ethnic and academic backgrounds;
- Frontiers of academia in Europe and beyond;
- History of colonial behavior in the archaeology worldwide;
- Colonial tendencies in international and transdisciplinary archaeological projects;
- Cultural heritage preservation activities in the conflict and post-conflict zones — how they avoid or support research colonialism;
- Decolonization in the archaeological projects’ design;
- Ways of creating a two-sided dialogue between the interacting agents, divided by inequality.

CONTRIBUTION ABSTRACTS

2513. KEYNOTE: THE “COMPRADOR” INTELLIGENTSIA IN ARCHAEOLOGY

**Contribution format:** Oral  
**Contribution authors:** Artur Ribeiro (University of Kiel, Institute of Pre and Protohistory)



The neocolonial paradigm discussed in archaeology is usually that of past European colonial enterprises, such as those that exploited regions such as Africa and India. Given how damaging these enterprises actually were, it is not surprising that we look at them as the basis of XXI century neocolonialism. However, during the colonizing period there were also some relationships between centre and periphery that were considerably more subtle, which have survived to today. Macau was a Portuguese outpost in Southern China, a place where Portugal traded with China. For trade to operate smoothly, “compradores” (buyers) were necessary – these were people who were bilingual, knowing both Chinese and Portuguese, and acted on behalf of the traders. The Portuguese were smart in securing as many compradores as possible, since that would give them an advantage in negotiations. Centuries later, we created a new form of comprador, the comprador intelligentsia, someone who in archaeology translates the world of the past and of the non-West. More than actual multi-national, multi-cultural, multi-disciplinary teams, what large scale global archaeological projects creates are small elites composed of compradores intelligentsia. These elites, more than paying respect to their homeland and the knowledge there created, are subservient to their donors and their interests. The aim of this talk is to explain this concept of the comprador intelligentsia, and to show that the knowledge they produce is nothing more than hegemonic discourse disguised as “cooperation”, “interdisciplinarity”, and “multivocality”.

**2180. SHIFTING THE NARRATIVE: TOWARDS BETTER PRACTICES IN ARCHAEOLOGICAL COOPERATION**

**Contribution format:** Oral  
**Contribution authors:** Alisa Demina – Oleksandra Ivanova (National University of Kyiv-Mohyla Academy)

The cultural heritage of humanity does not align with modern political borders, yet these borders define present-day inequalities. Archaeological research cooperation often reflects (post-)imperialist dynamics, where institutions with better access to resources set research agendas and dominate knowledge production. While international collaboration is, of course, crucial for any scientific field, the way to make it sustainable and beneficial for all parties still needs to be paved. Ukraine’s archaeology has long been at the crossroads of different postcolonial forces. Under the Russian Empire and later the Soviet Union, its heritage governance was centralized, and its past instrumentalized for political purposes. This resulted in both the direct removal of archaeological heritage from Ukraine’s territory and more subtle forms of epistemic dominance. Western academia, in turn, has often treated Ukraine as a source of “data” rather than an equal partner in shaping archaeological narratives. Ukraine became a place where research was conducted but not where its vision was defined. At the same time, since independence, the country’s political turmoil and postcolonial past have further limited the development of independent theoretical and methodological frameworks. As a result, past dependencies remained - particularly within the Russian sphere of influence. Today, the current war has made Ukraine more visible in global academic discourse. The destruction of cultural heritage and illegal excavations in occupied territories have intensified debates on research colonialism. However, does this increased attention lead to a genuine reconsideration of Ukraine’s role in global archaeology, or does it merely reinforce paternalistic approaches? One way to address these issues is through open discussion. We initiated the series of public events “Why Archaeology Matters? A Ukrainian Perspective” to explore these challenges and promote dialogue, both within the Ukrainian archaeological community to establish a shared vision for research and, internationally, to develop better practices in collaborative archaeology.

**1991. COLLECTIVE MEMORY, IDENTITY AND CULTURAL HERITAGE: RUSSIAN OCCUPATION AS AN ACT OF SYSTEMATIC COLONIAL VIOLENCE**

**Contribution format:** Oral  
**Contribution authors:** Anna Sietak (University of Vienna)

Memory is inherently dynamic, flexible and shaped by various dimensions. To make history tangible, communities embed it within different collective memory sites and forms: memorials, museums, monuments, landscapes, literature, holidays, traditions etc. By creating a network of cultural symbols and acts of remembrance, they reinforce their identity and ensure its continuity. Since 2014, with Russia’s occupation of Ukraine, thousands of illegal excavations have taken place in Crimea and other occupied regions. Looted artefacts are constantly exported and exhibited in Russian museums, while archeologists from occupied territories are relocated for “training programs” in Russia. Focusing on tangible cultural heritage, proposed paper aims to analyze Russian occupation as an act of systematic colonial violence that seeks to destroy collective memory and to rewrite history using its own narratives. Under occupation, identity loses its space for expression, becoming more vulnerable and exposed to change. The right to access and research own cultural heritage and history is stolen — turning memory into a contested and distorted space. Documenting and exposing these mechanisms is crucial for tracking colonial narratives, resisting historical erasure and holding perpetrators accountable.

**1602. WITH A LITTLE HELP FROM MY [METROPOLITAN] FRIENDS**

**Contribution format:** Oral  
**Contribution authors:** Semen Prokopenko (NAS of Ukraine) – Simon Radchenko (University of Stavanger)

Like many research fields, archaeology emerged as a colonial practice of extracting cultural heritage products from non-Western contexts without profound ethical consideration. While we recognize this practice as inappropriate nowadays, it is challenging to consider archaeology and cultural heritage preservation free from colonial trends and behavior. The development and transformation of archaeological research hid colonial practices behind the veil of research design, complicating their deconstruction. This talk points out several newer aspects where archaeological and cultural heritage projects can be covertly colonial today. Like many other things in the globalized digital world, research colonialism in archaeology became digital. This includes large initiatives to collect data from multiple sources worldwide and reconstruct their global perspective. While these projects can consist of hundreds of co-authors from non-Western countries, they are often treated as sample providers used to legitimize the data acquisition approaches. However, as the reconstruction of the global picture is still done from the research center, it often lacks local perspective and might be short on quality in terms of specific contextual details. Another neocolonial archaeological trend is related to the cultural heritage preservation projects in the war zones, where Western communities often invest significant resources to secure heritage preservation activities. While aiming for good, such actions often impose their perspective in the alien context without learning the ‘local way’ of doing things. As a result, projects are often implemented with nearly zero outcomes, barely producing anything except scarce deliverables and abundant financial reports. All these neocolonial initiatives share something in common: they perceive cultural heritage as an object of their research or preservation efforts. My claim is that cultural heritage must be considered an institution instead — a long-lasting ephemeral structure that should be able to develop and reproduce without the constant support from the initial center.

**2512. KEYNOTE: TWO NEOLITHICS OR TERMINOLOGICAL CONFUSION? THE MISLEADING CONCEPT OF NEOLITHIZATION WITHOUT AGRICULTURE IN EASTERN EUROPE**

**Contribution format:** Oral  
**Contribution authors:** Dmytro Kiosak (Leibniz-Zentrum für Archäologie (LEIZA) / Zentrum für Baltische und Skandinavische Archäologie)

For a long time, pottery-bearing hunter-gatherers in Eastern Europe and the USSR were classified as Neolithic. However, it is becoming increasingly clear that they do not fit this definition, as they neither practiced agriculture nor herding. Despite this, some scholars strongly advocate for maintaining this classification, citing reasons ranging from long-standing tradition to the unique historical trajectories of Eastern Europe, where pottery-making supposedly can be equated with societal advances related to the Neolithic status. However, being ‘Neolithic’ is not an honorific title bestowed by archaeologists; it is a scientific concept that must be clearly defined and unambiguous. The author argues that this inconsistent usage is rooted in a long-standing evolutionist perspective, reinforced by Russian and Soviet imperialism. Vulgar Marxism, the official ideological framework of Soviet historical science, posited that humanity progressed through defined stages of development, with some societies deemed “backward” for reaching these stages belatedly. However, the core peoples of the great empire—and their ancestors—could not be classified as such. This necessitated the construction of an independent early Neolithic for them. Consequently, with the collapse of its supporting ideology, the notion of a “special Neolithic” in Eastern Europe endures more out of inertia than scientific rigor. Nowadays, restoring the empire requires a renewed search for historical primacies.

**697. VOICES FROM THE MARGINS: TRACING INDIAN SURVEYOR CONTRIBUTIONS TO COLONIAL ARCHAEOLOGY THROUGH THE ARCHIVAL LENS**

**Contribution format:** Oral  
**Contribution authors:** Indu Prasad (Birkbeck, University of London)

The British Empire mounted multiple successful archaeological expeditions through the late nineteenth and early twentieth centuries. Of these, the Hungarian-British archaeologist Aurel Stein’s expeditions in the early decades of the twentieth century were crucial in the access and construction of one of the largest archaeological collections in the Empire’s museums of the period, which today continue in their post-colonial diasporas in the museums of the Commonwealth. While known eponymously as the Stein Collection, the related archival records, mainly housed in the extensive India Office Records and Stein’s personal papers, reveal the complex collective nature of its construction, most significantly in the contributions of the Indian surveyors who accompanied him. The Indian surveyor on Stein’s expeditions, deputised by the Survey of India, was not merely a surveyor. He adopted Stein’s mission of the expedition by mapping archaeological sites, sourcing antiquities, liaised with the larger teams – porters, camel men, baggage handlers etc, was fixer-in-chief on the field and when dealing with local authorities or people, was Stein’s official representative and by extension the British Raj. This paper draws on



the lives of select Indian surveyors who accompanied Stein, from multiple archival sources to crucially reflect on the surveyor’s role in colonial archaeological knowledge production and through it, critically re-evaluate the Stein Collection. By refocusing on the surveyors’ contributions to archaeological practices in British South Asia, this paper presents their work as captured in their own voice in the archives.

2275. DODOS, BEACHES, SUGAR, AND URBAN ARCHAEOLOGY: NAVIGATING (DE)COLONIAL ARCHAEOLOGY IN MAURITIUS

Contribution format: Oral  
Contribution authors: Diego Calaan (Ca’ Foscari - Venice University)

Since 2009, I have participated in several internationally funded archaeological projects in Mauritius, focusing on landscape archaeology and the archaeology of slavery and indenture. Since 2019, I have led an urban topo-graphic archaeological project in Port Louis, reconstructing the capital city’s development through a GIS-based approach. Funded by the Italian Ministry of Foreign Affairs, this initiative integrates historical data, topographic surveys (historic houses, public buildings, and infrastructure), and analyses of urban space usage. As part of cultural diplomacy, the project’s funding scheme seeks to bridge diverse academic methodologies and foster cultural hybridization. As Principal Investigator, I have adopted a global and multicultural perspective, chal-lenging the traditional view of colonial cities as spaces solely shaped by ruling powers. Instead, the project examines how enslaved people, freed individuals, laborers, artisans, sailors, merchants, officials, and military personnel adapted to and transformed this cosmopolitan urban environment. Designed with local scholars and authorities, the project has been well received, yet raises critical questions on its coloniality: What does it mean for Western scholars to study a city built within colonial frameworks yet defined by an insular cosmopolitanism blending African, Southeast Asian, Indian, European, and Chinese influences? Similarly, the material culture of the Indian Ocean world is vast, yet scholarship prioritizes Western artifacts, reflecting established archaeologi-cal paradigms. Additionally, calls for heritage preservation, particularly of “old buildings,” raise concerns about potential colonial and paternalistic narratives. Ultimately, while this project explores creolization as a cultural and historical process, it also questions whether our archaeological methodologies themselves are “creole”. Do our predominantly Western frameworks adequately capture the layered hybridity of the past we seek to understand?

2327. DECOLONIZATION DURING WARTIME: A CASE STUDY OF ODESA’S OLDEST MUSEUM (UKRAINE)

Contribution format: Oral  
Contribution authors: Mariia Lobanova – Oksana Hrytsiuta (Odesa Archaeological Museum of the National Academy of Sciences of Ukraine)

Since the full-scale invasion of Ukraine, the decolonization process has gained momentum, becoming a subject for academic research and public discourse. Decolonization is understood as reexamining relationships to histor-ical events and figures while highlighting previously silenced topics. A key aspect of this process is the role of museums in re-evaluating collections and launching broader societal conversations. In Odesa, this process is unfolding actively, sometimes dramatically. The Odesa Archaeological Museum forms a part of this discussion as it celebrates its 200th anniversary in 2025. Founded in 1825 during the Russian Empire, the museum was part of a vibrant academic community that conducted significant archaeological research. This raises a critical ques-tion: Which works and collections might be considered colonial, and how should colonialism be defined in this context? One of the museums’ core functions is engaging with the community and shaping narratives that influ-ence perceptions and conclusions. A review of the Odesa Archaeological Museum’s past exhibitions, displays, and public events reveals the omission of many important topics. As contemporary decolonization efforts progress, it is essential for these discussions to include the cultural diversity of the South of Ukraine, gender equality, and inclusivity, addressing the complex layers of history and identity in the region.

61 MOVING AWAY FROM FORWARDS: ANALYSING THE METAPHORICAL STRUCTUR-ING OF ARCHAEOLOGICAL THOUGHT

Session theme: 2. Intertwined Epistemologies: Transcending the Data – Theory Divide  
Session format: Discussion session  
Session keywords: Metaphors, Archaeological Theory, Reasoning, Language, Cognition  
Session organisers: Guillermo Díaz De Liaño (MOLA (Museum of London Archaeology)) – Ana González San Martín (Joukowsky Institute for Archaeology and the Ancient World (JIAAW) Brown University) – Kevin Kay (University of Leicester) – Alice Clough (MOLA (Museum of London Archaeology) | University of Bristol)

SESSION ABSTRACT

It is difficult to think about the past without the use of rhetorical figures. In our efforts to organise and convey information about concepts such as time, space, the body or the self, we commonly use structural metaphors (Lakoff & Johnson, 1980). Visual and verbal metaphors do not passively reflect data or ideas, but shape the ques-tions that archaeologists ask (or don’t ask), the work we do to answer them, and whether specific understandings feel ‘reasonable’ or ‘unsatisfying’. They are easy to undertheorise. Metaphors for similar concepts can vary widely depending between cultural contexts (Fuhrman & Boroditsky, 2010), shaping the way people systematise and represent information about topics. From diffusionism to structuralist textual metaphors, to the stratification of time and society or the tree-like diagrams of social complexity (Simonetti, 2015), archaeological thinking is intrinsically metaphorical. Archaeological diagrams and charts intertwine data and interpretation, and often-times we can find similar metaphorical devices being used to explain widely different phenomena, such as human evolution and the genealogy of archaeological paradigms. But what is the true impact of these figures in shaping archaeological thought? How innocent, useful, or dangerous are metaphors which, rather subtly, encapsulate entire cosmovisions, like the computational metaphor in cognitive archaeology, or the different biological anal-ogies used to explain how societies organise themselves? The aim of this session is bifold. We want to reflect on the use of popular rhetorical and metaphorical structures in archaeological thought, and we want to challenge traditional models by using an innovative and hopefully playful format, where we discuss current metaphors but also propose alternative ones. Communications can follow different formats, including oral presentation, but also the use of artistic techniques, performances, etc. Participants from diverse backgrounds are encouraged to participate, and the proposal of rhetorical figures from non-English speaking contexts is particularly welcomed.

CONTRIBUTION ABSTRACTS

1824. BETWEEN FAMILY TREES AND FUZZY RHIZOMES: THE POWER GAP IN KINSHIP METAPHORS

Contribution format: Oral  
Contribution authors: Kevin Kay (University of Leicester) – Marianne Hem Eriksen (National Museum of Denmark)

With new data (aDNA) and a renewed interest in middle-range theory, kinship diagrams have made a come-back in archaeology. The metaphor of a branching tree of person-to-person connections calls back to old-school anthropologies, which interrogated kinship as a totalising cultural system overlaid on biology. Tree diagrams simultaneously posit kinship as profoundly political—defining the foundational identities through which commu-nities are assembled—and curiously apolitical, insofar as kin relations are seen as simultaneously abstract and objective, largely exempt from any sort of contestation or material disruption. There is a reason this kind of analysis has largely been abandoned in anthropology. Alternative metaphors have been proposed, most notably Marshall Sahlins’ idea of kinship as ‘mutuality of being’. Seeing kinship as a rhizomatic blurring of the bound-aries between bodies fits the zeitgeist of relational theory, and helpfully grounds kinship in material practice (or ‘kin-work’). Yet it also decentres non-mutual aspects of kinship—a parent and child might ‘mutually exist’ through one another, but ‘parent’ and ‘child’ are not equal roles, and in many cases come with steep power differ-ences attached. We want to dwell on the way both metaphors detach power from what it means to relate as kin, and explore where archaeology can go from here. Can we capture aDNA’s insights into social processes, without stripping the flesh-and-blood politics out of sex, pregnancy, childhood, friendship, and similar? Can we embrace the mutual becoming of people, animals, and things, without obscuring the harm that becoming always entails? What other metaphors might draw out other kinships in archaeological data?

2519. “HIC SUNT DRACONES”: FIGURAL THINKING AND AFFECTIVE MULTITEMPORALITY IN MEDITERRANEAN MINING LANDSCAPES

Contribution format: Oral  
Contribution authors: Ana Gonzalez San Martin (JIAAW, Brown University)

Throughout the ancient Mediterranean, mining landscapes were not merely passive sites of resource extraction, but dynamic, volatile environments shaped by the interplay of human and non-human agencies. This paper explores the figural and affective dimensions of different aspects of ancient mining through geo-teratology (Ureta and Flores, 2018) -the study of geological “monsters”- to examine how mining communities engaged with the unpre-dictable agencies of mineral-rich landscapes. Drawing from archaeometallurgy, non-representational theories of material agency, and deep-time ecological approaches, this paper proposes reframing extractive practices as an ongoing negotiation with geophysical instability rather than a straightforward technological or economic process. The metaphor of the dragon and other beasts is often invoked in relation to metallurgical landscapes, and I will argue that it provides a conceptual, non-representational bridge between material transformations and human experience. Ore bodies, oxidation zones, and mining waste impoundments were not just economic affordances



to be exploited, but instead, volatile entities requiring adaptation, environmental awareness, and ritualized care. Inspired by case studies ranging from Iberia to the Levant, and informed by contemporary mining ethnographies, I propose a new metaphorical framework to approaching how miners and metalworkers in antiquity may have experienced these landscapes as both materially immediate and affectively charged; a delicate, care-based and continuous negotiation of wealth, environmental risk, and sustainability. By reassessing mining landscapes through figural (Auerbach, 1984) and geontological (Povinelli, 2016) frameworks, this paper seeks to challenge extractivist narratives that treat metallurgical and mining environments as inert and exhausted, posing them instead as agentic and affective places where the scars of ancient and contemporary metallurgical activity remain chemically and conceptually active; dragons that, though wounded, still breathe.

257. MEDIEVAL AS METAPHOR: THE NOT-SO DISTANT MIRROR

**Contribution format:** Oral  
**Contribution authors:** Robert Hedge (University of Leicester)

The medieval period is uniquely placed within the 21st century European imagination: simultaneously close enough to us that its legacy frames our daily experience — in the city streets, the villages, the churches, the place names, and the languages that structure the rhythms of our lives — and yet sufficiently distant as to appear a blank slate onto which we can project interpretive frameworks. These interpretations mirror the values of their declaimers: “medieval life was nasty, brutish and short; medieval society was inherently violent; medieval people rarely bathed... haven’t we come far? Aren’t we fortunate to live in a more advanced society?” Conversely: “medieval society built staggering architectural treasures; it was a time when people knew their place; it was a time of certainty, conviction, chivalric honour... isn’t that appealing? What have we lost?” From these framings, ‘medieval’ becomes metaphorical, synonymous with the best or worst of the human condition. A prominent UK politician recently railed against “alien cultures who possess medieval attitudes”. Perceptions of the medieval past have crept beyond the pages of childrens books and playful fantasy, and into a dark, dangerous discourse that breeds intolerance and justifies violence. Our archaeological research is inextricably woven into these narratives: of particular concern is our framing of change, and the linearity of archaeological interpretation. In examining metaphorical framings of the medieval in the archaeological imagination and beyond, this paper will examine their origins, their diffusion and their enduring popularity. It will present an alternative: a visual exploration of a complex and diverse millennium, in which ordinary people were shaping, naming and framing a world rich in its own visual metaphorical structure. It will offer participants a methodological framework for challenging the structural straightjackets of their own research topics, and to look through the distant mirror with a fresh perspective.

62 OTHER WAYS TO EXPLORE THE SURFACE. SPATIAL TECHNOLOGIES APPLIED TO TERRITORIAL ANALYSIS IN ARCHAEOLOGY

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Regular session  
**Session keywords:** Spatial technologies, Machine learning, Remote sensing, GIS, Predictive modeling, Virtual landscapes  
**Session organisers:** Carolina Cabrero (University of Granada) – Marco Cabras (University of Cagliari) – Francisco JoséSánchez Díaz (University of Seville) – António Manuel Diniz (University of Evora) – Ivo De Jesus Santos (University of Evora | Complutense University of Madrid)

SESSION ABSTRACT

The integration of cutting-edge spatial technologies is opening new perspectives in archaeological research, offering innovative ways to analyze landscapes and territories. This session highlights experimental approaches that enhance our understanding of past human-environment interactions and redefine how we detect, interpret, and visualize archaeological features across diverse contexts. Emerging techniques such as machine learning are enabling the recognition of subtle patterns in microtopographies and relief morphologies, revealing anthropogenic features that would otherwise remain hidden. Simulation models now allow for the dynamic reconstruction of material flows and diffusion processes, offering insights into the movement of resources, people, and ideas across ancient landscapes. Generative artificial intelligence is revolutionizing the virtual recreation of prehistoric environments, providing new ways to visualize and hypothesize about past landscapes with remarkable detail. More established tools, such as remote sensing technologies and UAVs (drones), are evolving through new applications, including the use of multispectral sensors for geochemical analysis of soil sediments, which can pinpoint ancient settlements and activity areas. Similarly, the integration of LiDAR data with advanced spatial analytics continues to refine our ability to detect and interpret hidden features in densely vegetated or rugged

areas. These methods, combined with GIS (Geographic Information Systems), support more precise predictive modeling, improving fieldwork planning while minimizing invasive interventions. We invite contributions that demonstrate the application of these experimental technologies, showcase innovative case studies, or address the methodological challenges they present. By fostering a discussion on the potential and limitations of these tools, the session seeks to inspire new approaches to archaeological analysis, promoting non-intrusive and sustainable practices that push the boundaries of spatial research.

CONTRIBUTION ABSTRACTS

68. GOING PUBLIC. EXPLORING THE RELIABILITY OF PUBLIC DATA FOR GEOSPATIAL ANALYSES IN THE BASSO VERBANO REGION (LAKE MAGGIORE - ITALY)

**Contribution format:** Oral  
**Contribution authors:** Amedeo De Lisi – Enrico Croce (University of Milan)

This paper aims to present the results of geospatial analyses conducted on settlement patterns over an extended period in the southern area of Lake Maggiore and the upper stretch of the Ticino River. When integrated with archival data, various public databases, including GNA, Copernicus, and the National Geoportal, can facilitate the development of an inductive predictive model aimed at understanding human-environment interactions from the Iron Age through the Medieval period. The study highlights the critical role of variable selection in predictive archaeology, demonstrating its utility both for descriptive purposes and for situating the study area within different historical periods. The results underscore the significance of proximity to watercourses and Lake Maggiore during the Iron Age for water supply, whereas, in the Roman period, this factor assumes primary importance, particularly in the context of trade. The model was further tested by comparing it with other similar regions in northern Italy, such as Lake Como and Lake Garda, to assess its predictive efficacy. The results indicate that the model's performance is not always optimal, possibly due to the incomplete nature of the initial database in certain aspects. The results also suggest that, despite apparent similarities in the natural and geographical characteristics of the regions, human settlement patterns may have been influenced by factors that are not yet fully understood or cannot be implemented in this type of analysis. Unfortunately, the nature of the evidence does not allow for the application of an ethnoarchaeological approach, which in other contexts has proved to be a way of overcoming some of the biases of a purely geostatistical approach.

658. THE SACRED MOUNTAIN FROM THE SKIES: DRONE AND LIDAR SURVEYING IN LA PEÑA DE LO. ENAMORADOS (ANTEQUERA, SPAIN)

**Contribution format:** Oral  
**Contribution authors:** Jose Ruiz Flores (Universidad de Sevilla) – David Wheatley (Southampton University) – Florian Cousseau (Durham University) – Raquel Montero Artús (Universidad de Sevilla) – Jose Antonio Lozano Rodriguez (Instituto Español Oceanografía (CSIC)) – Alexia Dorkel – Myriam Bensaïd (Université de Genève) – Jakub Niewisiewicz (Umea University) – Marie Besse (Université de Genève) – Leonardo García Sanjuan (Universidad de Sevilla)

La Peña de los Enamorados (Antequera, province of Málaga), is a limestone massif rising 886 m.a.s.l. Included in the UNESCO World Heritage List as part of the Antequera Dolmens Site since July 2016, La Peña stands out both as a remarkable landmark and as a multi-period archaeological complex. In February 2024, a survey campaign was carried out with the aim of synthesising the enormous archaeological record that La Peña de los Enamorados as a whole presents and to create its first preliminary detailed archaeological cartography. As part of the survey work, a high-resolution drone, with photogrammetric, LiDAR and thermal cameras was used, allowing us to obtain, for the first time, aerial reconnaissance images of this site. In this paper we will present the results of these flights, including the discovery of new megalithic tombs and settlement areas, not visible at ground level. These new discoveries add to the rich heritage of a high-profile World Heritage site. Legend, archaeology, landscape and now technology come together to give us new perspectives on a unique and yet poorly-understood archaeological site.

728. ELUSIVE LANDSCAPES: REMOTE SENSING IN ADVERSE LOCATIONS IN ATLANTIC IBERIA

**Contribution format:** Oral  
**Contribution authors:** Rodrigo González Camino – César Parceró-Oubiña – David González-Álvarez (Institute of Heritage Sciences (INCIPIT-CSIC))

Iron Age in the northwest of the Iberian Peninsula is characterised by the study of the castros (Hillforts). This type of settlement is the only one archaeologically recorded for the entire region, with a wide profusion throughout the territory. For this reason, Iron Age studies have tended to focus in the analysis of settlements, in the absence of other forms of evidence related to this period. This work proposes the use of different remote sensing tools,



in order to carry out off-site surveys of the castros. This methodology is systematically applied in three working areas selected in three northwestern provinces (Asturias, A Coruña and Ourense), where a significant amount of new archaeological sites are identified, as well as possible structures associated with the Iron Age out of the castros. In this way, new research lines on new forms of materiality are proposed, while at the same time providing experience in the application of this type of methodologies in the northwestern territory.

**749. ARCHAEOLOGICAL RECONNAISSANCE IN EASTERN KAZAKHSTAN USING SATELLITE IMAGERY: ON THE WAY TO THE USE OF NEURAL NETWORKS AND MACHINE LEARNING**

**Contribution format:** Oral  
**Contribution authors:** Andrey Pushkarev (East Kazakhstan Regional Museum of History and Local Lore)

East Kazakhstan is one of those unique territories, many parts of which are still ‘terra incognita’ for archaeologists. The inaccessibility of the mountainous areas and the low level of urbanization of the territory ensured the unique preservation of a large number of archaeological sites. At the same time, these conditions have made it significantly more difficult to investigate these sites using traditional archaeological surveys. As a result, a significant part of the objects remains unknown to researchers. To solve this problem, a program for searching archaeological sites using satellite imagery data was developed. Two sections of the territory of the Abay region of Eastern Kazakhstan were selected for the research, reflecting different landscape zones: Tarbagatai Ridge (mountains) and Saryarka (steppe and hills). At the preparatory stage, the previously identified archaeological sites were mapped. During the search stage, a continuous visual viewing of satellite images was carried out by grid cells. The area of 26,857 sq km was surveyed and 997 new objects with signs of archaeological sites were identified. At the conference, we would like to talk in detail about the work methodology, which turned out to be very effective for searching for archaeological sites using satellite imagery data. Its important feature is the use of free software and open map services, which makes it accessible to most researchers. The accumulated database of archaeological sites allows us to move on to the next step - the use of machine learning technology and neural networks to search for unknown archaeological sites throughout the whole territory of Eastern Kazakhstan. At this stage, we would like to discuss with experts how we can build further research. The research was carried out under the project BR24992916 ‘Comprehensive historical and archaeological research of the Abay region.’

**1133. SPATIAL TECHNOLOGIES USED TO RECONSTRUCT THE ECONOMIC BACKGROUND OF VILLAGES FROM THE LATE MIDDLE AGES TO THE PRESENT DAY**

**Contribution format:** Oral  
**Contribution authors:** Josef Petráš (Archaeological Institute of the Slovak Academy of Sciences)

The paper deals with the use of LiDAR and GIS (Geographic Information Systems) in combination with the study of archival written and cartographic sources to reconstruct the economic background of villages in the early modern and late medieval period. The study examines villages in the area of the former manor of Brtnice in the present-day Bohemian-Moravian Highlands in the Czech Republic and the manor of Krásna Hôrka in present-day Slovakia. Both areas are situated at an altitude of 450 - 600 metres above sea level. The settlement of these areas dates back to the 13th century, when the higher parts of both territories began to be populated with the so-called German colonisation. As these villages were established under German medieval law, the parcelling of the land remained virtually unchanged until the 1950s. In those years, Czechoslovak land was collectivised and individual plots were merged into larger units, destroying the original layout of the land. Aerial photographs taken before collectivisation can be used to reconstruct the original economic background of villages. Other important sources for such studies are cadastral maps from the second half of the 19th century and land registers from the 16th century, as well as LiDAR, which are available for both study areas. Once all this data has been converted into a GIS , it will be possible to create models of the landscape, identify the owners of individual farmsteads from the old land registers and the area of land they owned, and also, thanks to LiDAR, to discover structures that are now invisible. Another output will be the ability to trace the evolution of the landscape and its use over the last 200 years.

**766. BIRD’S-EYE VIEW: A PRELIMINARY APPLICATION OF GIS TOOLS AND MACHINE LEARNING MODELS TO CHALCOLITHIC/BRONZE AGE SELECTED SOUTHWESTERN IBERIAN AREAS**

**Contribution format:** Oral  
**Contribution authors:** António Diniz (Universidade de Évora, CHAIA, IN2PAST | Universidade de Évora, CIDEHUS) – Enrique Cuenca (Complutense University of Madrid) – Leonor Rocha – Inês Ribeiro (Universidade de Évora, CHAIA, IN2PAST) – Nelson Almeida (Universidade de Évora, CHAIA, IN2PAST | University of Lisbon, UNIARQ)

Research on the transition from the Chalcolithic to the Bronze Age in the Iberian Peninsula has seen successive updates and developments in recent decades. Several research projects address these issues, and many sites have

been added to the repertoire depicting these cultural, social, and demographic changes. However, only in recent years have new technologies been applied to these realities, as resources that allow us to see beyond materiality in its singularity and tools to allow us to perceive the whole, both at a local and regional level. This study aims to present preliminary data on these topics, using GIS tools and Machine Learning models to understand settlement patterns in the Guadiana River (Portuguese and Spanish territories) during the Chalcolithic/ Bronze Age transition. By combining information on the types of settlements, their topography, and resources in the area, we can start assembling a picture of how these communities occupied the landscape and adapted their lifestyle to the new contingencies that they faced between the 3rd and 2nd millennia BCE.

**1358. MSTĚNICE, THE CENTRAL SETTLEMENT AND ITS HINTERLAND. MODERN METHODS OF RECONSTRUCTING THE APPEARANCE OF THE SETTLEMENT AND THE CULTURAL-HISTORICAL LANDSCAPE**

**Contribution format:** Oral  
**Contribution authors:** Kamila Hanáková (Institute of Archaeology and Museology, Faculty of Art. Masaryk University)

The deserted medieval village of Mstěnice is located in the Czech Republic, in the Vysočina Region, within the Bohemian-Moravian Highlands, at an elevation of approximately 350 meters above sea level. The main focus of this thesis is a comprehensive analysis of the landscape and settlement, with an emphasis on the deserted medieval village of Mstěnice and its cultural-historical context. The development of this area has been traced primarily during the transition to late medieval settlement and from the village’s abandonment in 1468 to the present day. The core of the thesis is focused on the development of settlement and its role within the structure of the manor, political and administrative evolution, transformation of the landscape in the High and Late Middle Ages, and the consolidation of the normative village and its surroundings. A combination of traditional historical records and modern non-destructive methods has been used for the systematic analysis of this development. These non-destructive methods include: LiDAR, DTM, field surveys, metal detecting, surface collections, 3D photogrammetry, and GIS modeling of the surroundings.

**1452. POINT PATTERN ANALYSIS FOR THE STUDY OF NURAGIC LANDSCAPE: A QUANTITATIVE INVESTIGATION IN THE GULF OF CAGLIARI**

**Contribution format:** Oral  
**Contribution authors:** Matteo Alessi (“Sapienza” Università di Roma) – Davide Schirru (Musei Archeologici di Cagliari) – Alessandro Vanzetti (“Sapienza” Università di Roma)

The study of the Bronze Age Sardinian territory is undergoing a phase of profound transformation thanks to the adoption of new analytical methodologies that integrate traditional archaeology with statistical-quantitative approaches. During this period, Sardinia underwent a structured transformation of its landscape, marked by the construction of megalithic monuments, such as nuraghi and collective tombs known as “Giants’ Tombs”. The earliest nuraghi, referred to as “archaic,” exhibit more rudimentary forms compared to the later tholos-type nuraghi, which became widespread after the 16th century BCE. These building efforts gave rise to complex and dynamic landscapes, the evolution and organization of which remain somewhat elusive. The main objective of this research is to apply a range of spatial formal methodologies to investigate those archaeological phenomena along the southeastern part of the Gulf of Cagliari from a quantitative perspective, employing open-source software such as QGIS and R. In particular, Point Pattern Analysis represents a fundamental method for formalizing and quantifying spatial relationships between sites, the environmental context, and other elements of the dataset through functions such as Ripley’s K and Pair Correlation Function (PCF), which allows us to determine whether the distribution of points follows specific patterns or occurs randomly. The effectiveness of such analyses partly depends on the accuracy of the data, refined over the years through various survey and excavation campaigns at Nuraghe Antigori and Sa Domu e S’Orku, which have revealed, among other things, significant connections with the eastern Mediterranean. This approach provides an analytical perspective on the settlement dynamics of the Nuragic civilization during Middle and Late Bronze Age (ca. 1700 BCE - 1200 BCE). In this context, the adoption of a quantitative approach makes it possible to overcome some of the limitations and biases of traditional analyses, while also providing a solid framework for fruitful academic discussion.

**1682. MULTISPECTRAL UAS FOR ARCHAEOLOGICAL PROSPECTION: INVESTIGATING THE HINTERLAND OF IRON AGE HILLFORTS IN THE NORTH-WEST OF THE IBERIAN PENINSULA**

**Contribution format:** Oral  
**Contribution authors:** Juan Torrejón-Valdelomar – Carlos Otero-Vilarino – Marta Crespo-Fernández – Pastor Fábrega-Álvarez – Lucía Pereira-Pardo – César Parcero-Oubiña – David González-Álvarez (Institute of Heritage Sciences (incipit-csic))

The application of UAS (Unmanned Aircraft Systems) in archaeology has revolutionised how heritage sites are



explored, documented and preserved. Among the most advanced technologies used in this field, multispectral UAS stand out for their ability to capture information beyond the visible spectrum. Multispectral imaging allows to record data in different wavelengths, which facilitates the detection of changes in vegetation that indicate anomalies such as archaeological remains. These capabilities make multispectral UAS essential non-invasive tools, optimising future interventions, e.g. geophysical prospections and excavations. The implementation of these data in GIS, integrated with three-dimensional models, improves the documentation and analysis of the sites, allowing the detection of unearthed archaeological features. Within the framework of the projects ‘The Museum of the Invisible - Spectral Imaging Techniques for the Digital Recovery of Cultural Heritage’ and ‘HINTERLAND - Recognising human activity outside the Iron Age forts in the North-west of the Iberian Peninsula using non-invasive methodologies’ (INCIPIT-CSIC), an analysis of the hinterland of Late Iron Age hillforts, with special emphasis on Montes Claros (A Laracha, Spain), is being carried out through the application of different non-invasive techniques: UAS multispectral imaging, UAS LiDAR, and geophysical prospection. This talk aims to answer the question of whether multispectral UAS technology (including red, green, blue, red-edge and near-infrared bands) may be useful as a first step to investigate archaeological sites and their hinterland. Preliminary results showed that features observed in the multispectral UAS images are confirmed by geophysical prospection methods, suggesting that this approach would allow to efficiently evaluate the areas of interest, prior to more in-depth targeted interventions. Through a seasonal monitoring of the case study areas, we aim to identify the best conditions in the application of multispectral UAS techniques for the investigation of archaeological sites and their hinterland in the North-west of the Iberian Peninsula.

1706. A SPATIAL INTERACTION MODEL OF THE LATE HELLADIC MESSENIA, GREECE

**Contribution format:** Oral  
**Contribution authors:** Areti Michalopoulou (University of Cologne)

This study applies spatial interaction models to investigate how interactions among settlements in Late Helladic Messenia (ca. 1600–1050 BCE) may have shaped the region’s socio-political dynamics during this pivotal phase in Mycenaean civilization. Focusing on the emergence of the Palace of Nestor at Ano Englianos as the dominant center, the research examines how interactions among settlements shaped the region’s political landscape. Recent findings from Iklaina challenge traditional views of centralized control, prompting a reevaluation of Messenia’s political structure. GIS mapping tools and gravity-based spatial interaction models which implemented in R, were used to analyze settlement interactions across the region. A dataset of known settlement locations was used, supplemented by a small number of predicted “missing” sites to address potential survey bias. By leveraging simple data such as site coordinates and inter-site distances, the study seeks to shed light on the evolution of settlement hierarchies and Messenia’s broader socio-political landscape. Conducted as part of a master’s thesis, this research represents one of the few applications of spatial interaction models in Greek archaeology. It aims to highlight both the advantages and challenges of using computational tools to investigate ancient political networks. Ultimately, the findings will contribute to debates on Mycenaean state formation and help establish a framework for future archaeological studies exploring complex political structures.

2384. REMOTE SENSING FOR CULTURAL HERITAGE MANAGEMENT: HYPERSPECTRAL AND INSAR APPLICATIONS IN ARCHAEOLOGICAL AND ARCHITECTURAL HERITAGE

**Contribution format:** Oral  
**Contribution authors:** David Villalon-Torres (Instituto Andaluz del Patrimonio Histórico (IAPH)) – Carmen Cuenca-García (Universitat de València) – Raquel Montorio-Llovería (Universidad de Zaragoza) – Esteban García-Viñas (Instituto Andaluz del Patrimonio Histórico (IAPH)) – Clara Toscano-Pérez (Universidad de Huelva) – Antonio Ruiz-Armenteros (Universidad de Jaén) – Yolanda González-Campos (Instituto Andaluz del Patrimonio Histórico (IAPH)) – Juan Díaz-Quidiello (Consejería de Cultura y Deporte. Junta de Andalucía) – Eloísa Bernáldez-Sánchez – Milagros Alzaga-García (Instituto Andaluz del Patrimonio Histórico (IAPH))

Remote sensing technologies are reshaping both archaeological research and heritage conservation practices. This study presents the IAPH’s experience through two complementary approaches that leverage hyperspectral satellite imagery and Interferometric Synthetic Aperture Radar (InSAR) to support heritage stewardship and enhance management in various contexts. In the ARQUEOMEMES project, hyperspectral data from the PRISMA satellite are combined with on-site chemical analyses (ICP-OES) to accurately detect and delimit the Tejada la Vieja archaeological site (Escacena del Campo, Spain). By identifying chemical variations in soils altered by human activity and correlating them with their spectral signatures, this non-invasive method improves delineation precision and strengthens administrative decision-making for heritage protection. Meanwhile, the VESTIGIUM project applies Sentinel-1-based InSAR to monitor structural instabilities in watchtowers and castles along the Cádiz coast (Spain). This technique reveals ground subsidence and micro-displacements that may indicate emerging structural risks.

Moreover, the high temporal resolution of the data allows for long-term trend detection, reinforcing conservation strategies by prioritizing interventions and planning preventive measures. Despite their distinct objectives, both methods offer complementary perspectives and converge on a shared goal: advancing cultural heritage management through remote sensing. By integrating hyperspectral and InSAR data with on-site validation, these projects demonstrate the potential of a comprehensive, interdisciplinary approach to heritage management. This presentation provides an overview of the methodologies, preliminary results, and key insights obtained from ongoing research. We advocate a broader application of these tools to safeguard cultural assets under increasing threats and pressures, thus fostering a more sustainable and resilient future for our shared heritage.

1171. GIS- BASED ANALYSIS ON PROTOHISTORIC VILLAGES IN CENTRAL SARDINIA- ITALY (WESTERN MEDITERRANEAN SEA)

**Contribution format:** Oral  
**Contribution authors:** Ilaria M. F. Pitzalis (University of Cagliari)

The island of Sardinia, located in the western Mediterranean Sea, is the second largest island in the Mediterranean and has a predominantly mountainous and hilly territory. During the 2nd millennium BC, the island saw the development of the Nuragic civilization, characterized by a complex settlement system and a peculiar material culture. The contribution proceeds to analyze the distribution and settlement characteristics of the Nuragic settlements in the central-eastern region of the island, in order to reconstruct the strategies of territorial organization and the socio-economic dynamics of the communities of the time. The study examines a large region of the central-eastern region, with a focus on villages characterized by the presence of multiform hut structures. The investigation starts from the analysis of altimetric, geomorphological, hydrographic and chronological factors, in order to understand the settlement dynamics and interactions with the surrounding environment. Particular emphasis has been placed to a peculiar architectural manifestation: the sanctuary villages, manifestation of a close correlation between living spaces and cult functions. A series of visual-perceptive analyses conducted in a GIS environment were then carried out in order to evaluate the relationship with the territory and resources of the sites analyzed. The results suggest that the distribution of settlements was not random, but responded to specific territorial and economic logics, linked to the control of resources and communication routes. The contribution allows for a better understanding of the settlement dynamics of Nuragic Sardinia and of the relationship between man and the environment in a complex protohistoric context, especially with regard to the role of villages in relation to that of the most studied nuraghi.

2438. BUT THE BYZANTINES DID NOT HAVE GIS! OPTIMIZING GIS PREDICTIVE MODELS IN ARCHAEOLOGY

**Contribution format:** Oral  
**Contribution authors:** Predrag Đerkovic (Faculty of Philosophy, University of Belgrade)

Predictive models in archaeology have seen particularly widespread use with the introduction of GIS software, making it possible to identify potential locations of undocumented sites. However, the quality, and therefore reliability of the model, depends largely on the resolution of the data used to create it, which is especially problematic when dealing with insufficiently researched territories. Such is the case with early Byzantine hillforts in southern Serbia. While many newly built fortifications in 6th century A.D. have been mentioned in written records, only a small number of them have actually been registered - unlike in other regions in close proximity to Nišava valley. Using the example of ancient Remesiana and its surroundings, this work is based on reevaluating the theoretical and methodological approach when dealing with predictive models in poorly researched areas. Key factors, including proximity to rivers, roads, natural resources, altitude, geomorphology, and visibility potential, are critically evaluated to determine their relative importance in identifying suitable locations for early Byzantine fortifications in the region. The approach used here is based on experimental calibration of these factors in GIS, using the data from better researched territories in close proximity to the ancient Remesiana region. Only in that way can a precise and predictive model be made, and eventually checked using other methods of archaeological survey.

67. FINDING THE RIGHT WAY. NEW APPROACHES TO COST ANALYSES TO SHED LIGHT ON THE COURSE OF THE MEDIOLANUM-VERBANNUS

**Contribution format:** Poster  
**Contribution authors:** Amedeo De Lisi – Emanuele Intagliata (University of Milan)

Cost analyses conducted in GIS platforms have often been used to predict and reconstruct the course of ancient road networks in antiquity. However, such geospatial approaches present several limits; last but not least, the distortion caused by modern infrastructural works such as highways and airports. In addition, they often do not take into consideration natural features that may facilitate or create an obstacle between two geographic points. The scope of this poster is to overcome these limitations of these traditional geospatial analyses by realaborating



the geographical dataset (incl. DEM data) to reconstruct the past environment as exactly as possible. In addition, it will make use of specific plugins (r.walk in GRASS, among others) to factor other elements in predictive modelling, such as fatigue. It will take the ancient Mediolanum-Verbannus, a Roman road that connected Milan with Angera and the lower Lake Maggiore region, as a case study. While a few sections of this important regional artery have been fully excavated (incl. at Somma Lombardo) most of the course of this road remains unknown.

**701. BROADENING HORIZONS. APPLICATION OF NON-INVASIVE ARCHAEOLOGICAL METHODS IN THE ARCHAEOLOGICAL AREA OF CERRO DE LOS ALMADENES (OTERO DE HERREROS, SPAIN)**

**Contribution format:** Poster  
**Contribution authors:** Juan Álvarez García (Sociedad Española de Historia de la Arqueología) – Carlos Morato Marqués (Asociación para la Difusión de la Arqueología y la Minería Antigua) – Mariano Ayarzagüena Sanz – Santiago Valiente Cánovas (Sociedad Española de Historia de la Arqueología) – Gonzal. Lozano Otero (Instituto Geológico y Minero de España - Consejo Superior de Investigaciones Científicas)

Cerro de los Almadenes (Otero de Herreros, Spain) has become a key site for understanding mining and metallurgical production on the Iberian Peninsula in ancient times. Since 2009 and up to the present day, two well-differentiated areas have been identified. On the one hand, we have found the production area on the north-eastern slope of the hill. On the other, we identified the area of control and administration of all these activities on the upper platform. However, together with these two areas, which have been the focus of practically all the archaeological excavations, there are other areas where we could find other structures of importance to the study of the archaeological site, just like pitheads, living spaces and road remains. In order to understand the relationship between all these structures, excavated or not, we have carried out geophysical and aerial LiDAR surveys. Thanks to these two instruments, it has been possible to identify: mining and mineral processing areas, living spaces, roads and access routes to the settlement, among other infrastructures. The aim of this presentation is, therefore, to show how these two non-invasive archaeological methodologies have been used to broaden the horizons of knowledge about the mining-metallurgical settlement of Cerro de los Almadenes.

**803. SENSING VALENCIAN IBERIANSCAPES: A MULTI-SCALAR AND MINIMALLY INVASIVE APPROACH TO STUDY THE IBERIAN IRON AGE**

**Contribution format:** Poster  
**Contribution authors:** Carmen Cuenca-García (Departament de Prehistòria, Arqueologia i Història Antiga, Universitat de València | Department of Archaeology and Cultural History, Norwegian University of Science & Technology (NTNU)) – Maria Lucrècia Centelles-Fullana – Valeria Martín-Sidro (Departament de Prehistòria, Arqueologia i Història Antiga, Universitat de València)

SENSING IBERIANSCAPES (CIDEXG/2022/55) is a research project focused on the minimally invasive investigation of the Iberian Iron Age in eastern Spain. The project explores the ad-hoc integration of remote and proximal sensing, near-surface geophysics, and soils analysis to identify hidden features and conduct territorial analysis. Iberian culture is represented by a diverse range of archaeological sites, including fortified settlements, funerary places, and production sites associated with metalworking and agriculture. By examining these sites and their surrounding landscape, we aim to gain a multi-scalar perspective that allows a more nuanced interpretation of how these protohistoric societies were organised. This poster presents the progress of our research in 2024 and 2025, highlighting the results of geophysical surveys using magnetometry and ground-penetrating radar (GPR), as well as the analysis and monitoring of multispectral satellite imagery. Additionally, we assess the potential of photogrammetry and LiDAR at several of our case study sites. By integrating these methods, we seek to enhance detection success and the depth in proxy interpretation, ultimately providing new insights into ancient land use and spatial organisation. This project is funded by the PLAN GENT CIDEAGENT 2022 of the Generalitat Valenciana. Conselleria de Educación, Universidades y Empleo.

**1129. RIVERS AS SHAPERS OF PREHISTORIC ENVIRONMENT: THE ROLE OF WATERCOURSES IN THE PRIGORJE REGION DURING THE BRONZE AND IRON AGES**

**Contribution format:** Poster  
**Contribution authors:** Laura Šejic – Franka Ovčarić – Luka Drahotusky-Bruketa – Janja Mavrović Mokos (University of Zagreb, Faculty of Humanities and Social Sciences, Department of Archaeology)

Watercourses have long influenced human habitation, serving as both facilitators of exchange and obstacles to movement. This study investigates the influence of rivers on settlement formation during the Bronze and Iron

Ages in the Prigorje region through an interdisciplinary approach that synthesizes archaeological, historical, and palaeoenvironmental data. By integrating geoarchaeological evidence, hydrological reconstructions, and archaeological sites pattern analysis, this research examines how rivers functioned as trade routes, boundaries, and sources of sustenance. Historical hydrology provides insights into past water levels and flood dynamics, while archaeological data reveal direct and indirect traces of human interaction with fluvial landscapes. The positioning of settlements, shifts in habitation patterns, and the material culture associated with riverine environments reflect both opportunities and constraints imposed by these watercourses. This study also considers how different cultural, and environmental contexts shaped social interactions along waterways. Rivers acted as unifying corridors facilitating movement and exchange, while in other cases, they reinforced divisions, particularly in frontier regions. Advances in remote sensing, GIS modeling, and LiDAR analyses enhance the investigation of settlement dynamics, allowing for a micro-regional approach to understanding human adaptation to changing fluvial conditions. In floodplains, LiDAR-derived digital elevation models (DEMs) can be converted into relative elevation models (REMs) to better visualize river features that are difficult to discern using aerial imagery or lower-resolution DEMs. REMs are particularly useful in identifying past river channel migrations, vividly displaying features such as meander scars, terraces, and oxbow lakes. Such information is invaluable for studying channel migration, flood history, and broader environmental, cultural, and engineering assessments. This research examines the interaction between human activities and natural processes, providing a deeper understanding of how rivers have influenced past human landscapes. The findings enhance broader discussions about the long-term relationship between societies and their water environments, emphasizing the resilience and adaptability of prehistoric communities.

**1360. MSTĚNICE: THE CREATION OF THE FIRST “CADASTRE” BEFORE THE TRANSFORMATION INTO A HIGH MEDIEVAL VILLAGE?**

**Contribution format:** Poster  
**Contribution authors:** Kamila Hanáková (Institute of Archaeology and Museology, Faculty of Art. Masaryk University)

The deserted medieval village of Mstěnice is located in the Czech Republic, in the Vysočina Region, within the Bohemian-Moravian Highlands, at an elevation of approximately 350 meters above sea level. The main focus of this thesis is a comprehensive analysis of the landscape and settlement, with an emphasis on the abandoned medieval village of Mstěnice and its cultural-historical context. The development of this area has been traced primarily during the transition to late medieval settlement and from the village’s abandonment in 1468 to the present day. The core of the thesis is focused on the development of settlement and its role within the structure of the manor, political and administrative evolution, transformation of the landscape in the High and Late Middle Ages, and the consolidation of the normative village and its surroundings. A combination of traditional historical records and modern non-destructive methods has been used for the systematic analysis of this development. These non-destructive methods include: LiDAR, DTM, field surveys, metal detecting, surface collections, 3D photogrammetry, and GIS modeling of the surroundings.

**1440. VISUAL DOMINANCE AND SPATIAL ORGANIZATION IN MENORCA’S PREHISTORIC ROCK-CUT TOMB NECROPOLISES**

**Contribution format:** Poster  
**Contribution authors:** Sonia Carbonell Pastor (Grup de Recerca en Arqueologia Protohistòrica (GRAP) | University of Barcelona (UB))

The application of Geographic Information Systems (GIS) in the study of ancient landscapes has significantly evolved in recent years. In the context of funerary landscapes, these tools have opened new avenues of research, shedding light on the factors influencing the location of necropolises and the internal organization of these spaces. This poster presents a case study on intervisibility analysis applied to one of Menorca’s artificial cave necropolises, primarily used during the first millennium BCE. These funerary sites are characterized by clusters of rock-cut chamber tombs, typically located on the vertical slopes of ravines and cliffs overlooking the sea, as well as on rocky outcrops that provided optimal conditions for their excavation. In sites such as the Calescoves necropolis (Alaior), a variety of tomb types have been documented, ranging from natural caves and rock shelters with Cyclopean-style entrance walls, dated to the Late Bronze Age, to more elaborate artificial caves, which form the core of this study. These rock-cut tombs span a broad chronological framework covering the entire first millennium BCE. The continuous funerary use of the same location over centuries suggests a strong symbolic and emotional connection between the communities that inhabited this region and their burial spaces. The primary objective of this study is to determine whether spatial patterns exist in the visibility of the funerary units within the Calescoves necropolis. We aim to analyze the relationship between visibility indices and the architectural characteristics of different tomb types, from the earliest natural caves and rock shelters with Cyclopean walls to the more complex artificial caves.



64 STORYTELLING TEETH: INSIGHTS INTO DIET, HEALTH, AND LIFESTYLES THROUGH DENTAL ANTHROPOLOGY

Session theme: 5. Finding the way! Archaeological sciences and opening new research perspectives  
Session format: Regular session  
Session keywords: Teeth, Dental anthropology, Oral pathologies, Dietary reconstruction, Morphology, Multiproxy  
Session organisers: Raquel Hernando (Centro Nacional de Investigación sobre la Evolución Humana (CENIEH)) – Miguel Ángel Moreno-Ibáñez (School of History, Classics and Archaeology, University of Edinburgh) – Dulce Neves – John Willman (Centro de Investigaç o em Antropologia e Sa de (CIAS))

SESSION ABSTRACT

Human teeth are highly informative biological structures that offer invaluable insights into many aspects of human life in the past—from dietary practices and oral pathologies to non-masticatory activities. This session seeks to highlight the significant potential of dental anthropology for understanding past lifeways, particularly when combined with complementary methodologies. By integrating different proxies—e.g. dental micro and macro wear, oral pathologies, morphological analysis, isotopic analyses, and dental calculus—we can achieve a deeper understanding of how past human groups interacted with their environments, developed subsistence strategies, and experienced health and stress. The combination of multiple approaches allows for a more comprehensive view of the intricate relationships between diet, health, and lifestyles in different periods and regions. We encourage researchers to submit proposals that explore these themes through case studies from various chronologies and geographical contexts. Contributions that combine dental evidence with other archaeological and anthropological methods will help foster a richer dialogue on the lifeways of past populations. This session aims to provide a platform for exchanging ideas across different areas of dental anthropology, showcasing innovative methodologies, and promoting discussions that bridge the gaps between researchers’ specializations. By bringing together diverse perspectives, we hope to establish a summary of the current state of the art in dental anthropology and related research, offering inspiration and collaboration opportunities for all participants.

CONTRIBUTION ABSTRACTS

272. UNVEILING LATE PREHISTORIC PRACTICES OF THE NORTHEASTERN IBERIAN PENINSULA: A COMPLEMENTARY APPROACH TO DENTAL MICROWEAR ANALYSIS

Contribution format: Oral  
Contribution authors: Aristeidis Strimenopoulos (Institut Catal  de Paleoecologia Humana i Evoluci  Social (IPHES-CERCA) | Universitat Rovira i Virgili, Departament d’ Hist ria i Hist ria de l’ Art) – Jos  Espejo (Atics, Gestio i difusio del patrimoni arqueol gic i hist ric, Matar  | Seminari d’ Estudis i Recerques Prehist riques (SERP), Universitat de Barcelona) – Esther Medina – Sergi Segura – Francesc Florensa (Atics, Gestio i difusio del patrimoni arqueol gic i hist ric, Matar ) – Josep Maria Verg s –  ngel Rubio Salvador – Marina Lozano (Institut Catal  de Paleoecologia Humana i Evoluci  Social (IPHES-CERCA) | Universitat Rovira i Virgili, Departament d’ Hist ria i Hist ria de l’ Art)

The conduction of dental microwear analysis has proven to provide insights into past human practices and lifestyles. The specific analysis is laid in the examination of dental features, which imply the adoption of specific dietary habits or/and the use of teeth as tools, thus indicating the behavioral level of the studied individuals. In this context, the Bronze Age of the Iberian Peninsula provides a fruitful ground for the understanding of the subsistence strategies and cognitive patterns of the populations through the study of dental wear due to its diversity, which the archaeological record has exhibited concerning this temporal point. The specific study is laid in the examination of the wear patterns on the dental remains of 4 sites, which are located in the Catalonia, Northeastern Iberian Peninsula. The specific sites are placed chronologically in the Early and Middle Bronze Age, while are attributed to both deciduous and permanent dentition and both sexes, providing a very good opportunity for the obtainment of a comprehensive approach on the diets and behaviors of the specific populations. Furthermore, the adopted methodological framework consists of the use of 2 different pieces of microscopic equipment (Optical and Digital microscopes), aiming to examine different aspects of the dental features and to understand the level of complementation among the two microscopes for the finest archaeological interpretation. In this framework, our results demonstrate insights into the dietary and the behavioral patterns of the studied populations, while underlining the need for the adoption of complementary methodological approaches for the in-depth examination of the dental features during the conduction of dental microwear analysis.

217. DIETARY PRACTICES IN LATE PREHISTORY OF NORTHEASTERN IBERIA: THE CASE OF ROC DE LES ORENETES AND COVA DEL GEGANT

Contribution format: Oral  
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The Late Prehistory of the Iberian Peninsula was a period of significant cultural dynamism and complexity, characterized by a series of socio-cultural, technological, and demographic transformations with different regional expressions and rhythms. This study focuses on understanding the dietary practices during the Late Prehistory of the northeastern Iberian Peninsula, focusing on two groups: Cova del Gegant and Roc de les Orenetes, which span from the Late Chalcolithic to the Middle Bronze Age. Teeth were examined using the dental microwear technique with an optical microscope (OM), focusing on the buccal surfaces. Buccal dental microwear patterns revealed significant differences between the groups, suggesting distinct dietary strategies influenced by diverse factors. By integrating these results with other proxies, including oral pathology and isotopic analyses, we identified two dietary patterns reflecting varying degrees of abrasiveness. High-altitude sites like Roc de les Orenetes suggest pastoral economies heavily reliant on animal products, while coastal sites such as Cova del Gegant reflect mixed diets influenced by the inclusion of extrinsic particles. These findings show the intricate interplay between environmental settings, resource choices, and subsistence strategies. This research highlights the potential of combining dental microwear with other available proxies to gain deeper insights into past lifestyles and cultural adaptations. By situating these dietary patterns within the broader Iberian context, this study sheds light on the dynamic interactions between human populations and their environments during Late Prehistory, contributing to a deeper understanding of their lifeways.

500. CULTURAL INFLUENCES ON DIET: INSIGHTS FROM MEDIEVAL ISLAMIC AND CHRISTIAN POPULATIONS IN SILVES (SOUTHERN PORTUGAL)

Contribution format: Oral  
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This study explores dietary patterns in two medieval populations—Islamic (9th–13th centuries) and Christian (13th–15th centuries)—from Silves (Portugal), posing the hypothesis. Since both groups occupied the same location, then any observed dietary differences would be primarily driven by cultural rather than environmental factors. To test this hypothesis, the prevalence of caries (recorded as present/absent) and antemortem tooth loss (AMTL) in permanent dentition (individuals >11y.o.) were analyzed. The prevalence of caries was higher among the Islamic population (61.1%, 22/36) compared to the Christian (36.9%, 22/58). After applying the ‘caries correction factor’ proposed by Lukacs (1995). to account for AMTL, the adjusted prevalence was respectively 19.6% and 12.3%. Statistical analysis confirmed a significant difference between the two populations, both at the individual level (p = 0.028) and after correction (p < 0.05). The prevalence of AMTL was 55.6% (20/36) in the Islamic population and 55.2% (32/58) in the Christian. A comparison of AMTL loci showed similar trend (12.7% vs. 10.4%), with no significant differences in either case. These results suggest a different intake of cariogenic foods, and/or differences in food preparation techniques. Poor skeletal preservation hindered sex estimation for many individuals, preventing the analysis of potential sex-based differences. Published isotopic data suggest the Islamic community could have relied more on C<sub>3</sub> plants, while the Christian diet was slightly more diverse, consistent with higher fish and/or terrestrial animal protein intake. However, 12th–13th century faunal remains suggest an alternative scenario, indicating consumption of domestic animals (sheep, goats, chickens) and wild species (rabbits, hares, red deer, wild boar or domestic pigs, partridge, geese (potentially domesticated), fish, and molluscs. These findings highlight the cultural influence on diet and the need for complementary methods to better understand past lifeways and cultural dynamics.



1202. LIFESTYLE AND OCCUPATIONAL ACTIVITIES AT THE IRON AGE SITE OF PONTECAGNANO (CAMPANIA, ITALY, 7TH-6TH CENTURY BCE)

**Contribution format:** Oral  
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Dental calculus analysis provides a window into the dietary habits and daily activities of ancient populations. The present research focuses on the analysis of dental calculus of five individuals from the Iron Age necropolis of Pontecagnano (Campania, Italy, 7th-6th century BCE), selected for their well-preserved and extensive calculus deposits. Our aim is to reconstruct aspects of adult diet and possible occupational activities through the micro-scopic analysis of micro-debris embedded in the dental calculus. We carried out a meticulous extraction and analysis of dental calculus following established protocols. Micro-debris were identified by light microscopy and compared with modern reference collections and existing literature. Our results show the presence of starch granules, plant fibres and fungal spores. Starch granules, identified in three individuals, belong to the Poaceae family (Triticeae tribe: wheat and barley) and the Fabaceae family (lentils, fava, and peas). The damage observed on some granules suggests possible cooking or processing techniques. In addition, numerous *Saccharomyces* fungal spores were identified in three individuals, likely suggesting the consumption of fermented foods and/or beverages. The presence of plant fibres in all individuals analysed suggests extra-masticatory use of teeth or hygiene practices. The presence of cereals, legumes, and evidence of fermentation processes, along with plant fibres, highlights the complex interplay between diet, culture, and environment in Iron Age Pontecagnano and their inhabitants. Furthermore, we integrate optical analysis of dental calculus with other lines of bioarchaeological evidence, which will provide valuable insights into food preparation techniques and broader cultural practices in this ancient population.

1401. DENTAL MICROWEAR ANALYSIS AT CASTILLEJO DEL BONETE SITE (TERRINCHES, CASTILLA LA MANCHA, SPAIN)

**Contribution format:** Oral  
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Castillejo del Bonete (CB) is a sacred site in Castilla-La Mancha, built within a natural cave and used as a burial place during the transition from the 3rd to the 2nd millennium cal BC. A minimum of 80 individuals were interred at the site. This burial period at CB coincides with an increase in social complexity. Since dental microwear analysis is a well-established method for characterizing subsistence strategies, cultural behaviors, and social organization, it can be used to evaluate this process of increasing social complexity. The main objective of this study is to establish the dental microwear pattern in molars from CB. To achieve this, we analyzed the occlusal and buccal surfaces of 8 upper first molars, 22 lower first molars, 20 upper second molars, and 22 lower second molars. For buccal microwear analysis, digitized micrographs were taken at 100× magnification, measuring the number, length, and angles of all scratches. For occlusal microwear analysis, facet 9 was imaged at 500× magnification, counting pits and scratches. Our preliminary results suggest an abrasive diet, along with some interindividual differences. This study is expected to provide valuable insights into the relationship between dental microwear, diet, and food processing techniques, contributing to a better understanding of these late prehistoric populations.

1657. THE DIETARY CHOICES OF NEOLITHIC COMMUNITIES IN THE SOUTHERN CARPATHIAN BASIN (~6250-4500 CAL. BC)

**Contribution format:** Oral  
**Contribution authors:** Jelena Jovanovic (BioSense Institute, University of Novi Sad) – Jelena Marković (Department of Archaeology, Faculty of Philosophy, University of Belgrade) – Tamara Blagojević – Maja Kokanović – Nejra Omerović (BioSense Institute, University of Novi Sad) – Alejandro Romero (Department for Biotechnology, Faculty of Science, University of Alicante) – Camille De Becdelièvre (Associate Member, Aix Marseille Univ, CNRS, Minist Culture, LAMPEA, Aix-en-Provence)

The Neolithic period represents an important stage that shaped the development of mankind and transformed the trajectory of our species. In the late 7th millennium BC, farmers from the Near East spread into Europe via the Balkans and Carpathian Basin, introducing new economic and social practices. The Southern Carpathian Basin represents one of the key regions for examining the nature and dynamics of the farming expansion and the adaptations of different parts of the “Neolithic package” into new natural environments. An important aspect in studying the processes of Neolithization and consolidation of Neolithic practices is the question of dietary strategies through space and time. To investigate how newly arrived Neolithic communities (~6250–4500 cal. BC) adapted to the local environmental conditions and food resources and how their diet changed throughout their lifetime, we observed several parameters on human teeth from this region (dental caries, calculus deposits, antemortem tooth loss), and performed stable isotopes ( $\delta^{13}\text{C}$ ,  $\delta^{15}\text{N}$ ,  $\delta^{34}\text{S}$ ) and buccal microwear analysis. The results showed that the diet of Neolithic communities was based mostly on terrestrial resources, with a high input of carbohydrate-rich foods, and that only a few consumed aquatic resources in moderate amounts. They had a mixed diet of plant and meat foods, and there is a trend toward greater meat consumption among men. Differences seen among some Neolithic individuals from different sites might reflect communities’ adaptation to local environments and food sources. Our ongoing study of sequential analysis of tooth dentine will deepen our knowledge of individual early life histories and the diversity of food consumed and identify possible mobility from childhood to adulthood. This research was supported by the Science Fund of the Republic of Serbia, GRANT No. 7498, Moving across the plain: reconstructing the lifetime movements of farming pioneers and their successors during the Neolithic in the Southern Carpathian Basin-MOVE.

2191. DIET AND SUBSISTENCE STRATEGIES OF CATACOMB CULTURE POPULATION NEAR RIVER LUHAN`

**Contribution format:** Oral  
**Contribution authors:** Claudia Sharapova (Taras Shevchenko National University of Kyiv)

Pastoralism, which constituted the basis of the Bronze Age population’s livelihood, is characterised by a specific set of food products. The pastoralist lifestyle of the Catacomb community is traditionally associated with diet rich in animal proteins. However, the actual adaptation strategies could potentially be much more complex. Detailed description of the diet based on dental pathologies has the capacity to confirm or refute the hypothesis of intergroup specialisation of households within local groups of catacomb cultures. To identify signs of dental pathologies, a sample of individuals from the kurgans near the city of Oleksandrivsk, located in the Luga River basin, was created. The excavations were carried out by the Siversko-Donetsk expedition in the 1970s by S. Bratchenko. Selected individuals belong to the Catacomb cultures. The following dental pathologies were recorded: periodontal disease, apical processes, calculus, caries, ante-mortem tooth loss, interproximal grooves, enamel chipping, hypercementosis, tooth wear, and secondary dentin. Signs of pathologies that provide a general indication of the health status of the subjects in the sample were also incorporated to the study. They include linear enamel hypoplasia as a marker of stress episodes and localised pitting enamel hypoplasia, which is associated with osteopenia. The obtained information reflects the relationship between the success of particular survival strategy and prevailing living conditions of the population. The high prevalence of calculus, low frequency of caries and its complication, as well as distributions of the other markers, suggest the predominance of protein-rich diet in the catacomb culture populations. Intergroup fluctuations in frequency of the stress indicators reflect the local or temporal variants of adaptation level.

920. ORAL PATHOLOGIES FROM ROC DE LES ORENETES: HEALTH AND LIFESTYLE OF AN EARLY BRONZE AGE POPULATION IN THE EASTERN PYRENEES

**Contribution format:** Oral  
**Contribution authors:** Miguel Ángel Moreno-Ibáñez (School of History, Classics and Archaeology, University of Edinburgh) – Raquel Hernando (Centro Nacional de Investigación sobre la Evolución Humana (CENIEH) | Institut Català de Paleoecologia Humana i Evolució Social (IPHES-CERCA)) – Palmira Saladié (Institut Català de Paleoecologia Humana i Evolució Social



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Teeth are a fundamental part of the skeleton for studying different aspects of the health and lifestyle of past populations, especially if they are studied from different approaches. In this study, we examine the oral pathologies documented in the prehistoric collective burial of Roc de les Orenetes (Queralbs, Girona, Spain). It is a burial cave with a minimum of 51 individuals, located in a high mountain environment. Caries, periodontal disease, dental enamel hypoplasia, dental calculus, and antemortem tooth loss have been found in the remains of Roc de les Orenetes. Caries have been documented in 16 adult teeth (1.8%), in most cases molars, interproximal, and with an intermediate severity. Periodontal disease has been observed in nine mandibles and six skulls, belonging to adult individuals of different ages, representing 18.3% of the skulls and mandibles recovered at the site. Severe enamel hypoplasia has been found in eleven dental remains (1.2%), mostly canines. Dental calculus is highly prevalent (16%), found in 143 teeth, especially in the mandibular dentition. Finally, two crania and two mandibles present cases of antemortem tooth loss, in one case with the loss and resorption of all molars and premolars. From the paleopathological point of view, the low number of caries and the high proportion of periodontitis can be related to a diet rich in animal protein intake. The results observed from dental microwear studies provide complementary information, indicating a diet based on highly processed or soft foods, such as meat or secondary products. Further skeletal pathologies may support this interpretation, as several cases of cribra orbitalia, porotic hyperostosis, periosteal new bone formation, and hypervascularity have been found. Taken together, this evidence suggests important metabolic deficiencies, such as anemia, rickets, or scurvy, indicating a lifestyle adapted to high mountains, with a shortage of some foods and high physiological stress.

**1282. INTER-ISLAND VARIATION IN ORAL HEALTH, DENTAL SIZE, AND ENAMEL HYPOPLASIAS IN THE AMAZIGH POPULATION OF THE CANARY ISLANDS (1ST–15TH CE)**

**Contribution format:** Oral  
**Contribution authors:** Aarón Morquecho Izquier – Jonathan Santana (Universidad de Las Palmas de Gran Canaria | IG. I. Tarha. Department of Historical Sciences) – Rebeca García González (Universidad de Burgos | Laboratory of Human Evolution, Department of History, Geography and Comunicación | Faculty of Humanities and Comunicación)

This study examines oral conditions, dental size, and linear enamel hypoplasias (LEHs) in 61. adult individuals from the Amazigh population of the Canary Islands (1st–15th cal CE). The oral conditions analyzed include dental macrowear, calculus, periodontal disease, and antemortem tooth loss (AMTL). Mesiodistal (MD) and buccolingual (BL) diameters, as well as the geometric mean of permanent teeth (I1–M2), were measured for all islands except Lanzarote. LEH prevalence, age at first occurrence, and stress episodes were assessed macroscopically in the same sample. Two distinct patterns emerged: the Gran Canaria population exhibited the largest teeth, the highest overall prevalence of dental conditions, and the highest prevalence of LEHs. In contrast, the populations of El Hierro and La Palma generally showed the smallest teeth, the highest prevalence of severe macrowear, and the lowest LEH prevalence. The remaining populations (La Gomera, Tenerife, and Fuerteventura) presented a mixed pattern, with no clear trend toward either extreme. No consistent pattern in sex differences was found regarding the prevalence of caries, periodontal disease, AMTL, calculus, and hypoplasias across the islands. In some cases, one sex shows higher prevalence on certain islands, while on others the opposite trend—or no significant difference—is observed. Additionally, age at death appears to be a key factor influencing the prevalence of all oral conditions examined. Overall, the findings suggest that inter-island differences in oral health, dental size, and LEH prevalence were shaped by a complex interplay of environmental, behavioral, and possibly genetic factors, rather than following a uniform trend across the archipelago.

**1680. RECONSTRUCTION OF DIETARY HABITS AND DENTAL HEALTH IN MEDIEVAL AND EARLY MODERN URBAN AND RURAL COMMUNITIES FROM CONTINENTAL CROATIA**

**Contribution format:** Oral  
**Contribution authors:** Željka Bedic (Institute for Anthropological Research) – Maja Bunčić (Archaeological Museum in Zagreb) – Ivana Hirschler Marić – Andrej Janeš (Croatian Conservation Institute)

Diet has an important role in the organisation and evolution of human cultures. Information about the type of diet

and dietary habits of ancient populations may be obtained from historical sources, by studying the animal and plant remains excavated at archaeological sites, by analyses of teeth and stable isotopes of human osteological material. In this study we focused to obtain this information through analysing three dento-alveolar pathologies: caries, ante-mortem tooth loss, and alveolar abscesses, as well as carbon and nitrogen stable isotope analysis from bulk collagen. The study included three archaeological sites in continental Croatia from the Middle Ages and Early Modern Period. Two of them are of rural character – Stenjevec and Bijela, while Gorjani were one of the largest settlements in Medieval Slavonia. The cemetery around the church of the Assumption of the Blessed Virgin Mary in Zagreb – Stenjevec exhibit around 170 excavated graves, cemetery inside the church of the Benedictine monastery of St Margaret situated in Bijela near Daruvar around 50, and inside two churches (one older and one younger) in Gorjani near Đakovo around 200 graves. Previous data obtained during the analysis of part of the dental material from Gorjani and Bijela show similar frequencies of caries (13.6 vs. 11.0%) and alveolar diseases (15.4% in both samples) with significantly worse oral health in females. The aim of this study is to discover, in a larger sample, what effect living in a rural or urban area had on dental health, whether they practiced a different subsistence strategy, and ate different foodstuffs due to the development of trade, agriculture, oral hygiene, etc. depending on the environment in which they lived.

**2057. DENTAL INSIGHTS INTO SUBSISTENCE, HEALTH, AND INEQUALITY IN MEGALITHIC BURIALS OF THE MIDDLE DOURO VALLEY (CENTRAL IBERIA)**

**Contribution format:** Oral  
**Contribution authors:** Ana Lorenzo Barrio – Teresa Fernández Crespo (University of Valladolid) – Rebeca García González (University of Burgos) – Cristina Tejedor Rodríguez (University of Valladolid)

Anthropological approaches to megalithic tombs are constrained by the palimpsest-like mortuary record they usually include, where cumulative funerary use often plays an important role. Those disarticulated, commingled, fragmented and generally poorly preserved skeletal assemblages make both individualization and osteobiographic reconstructions very difficult tasks. Within this complex scenario, teeth stand as key elements to trace life-histories because they hold meaningful incremental physiological and dietary information during their formation and far beyond. Within the framework of the AGENDER project (Politics of death and diachrony of inequality in the megalithic tombs of the Douro Valley during the 4th millennium BC), this contribution is a diachronic study of subsistence strategies and experienced health and stress episodes. These aspects of megalithic populations are revealed by combining dental macro and microwear, oral pathologies, non-specific stress markers (such as linear enamel hypoplasia) and both bone and dentine collagen carbon and nitrogen isotope analysis. To obtain more nuanced life-histories, these dietary and health insights are linked to biological profiles based on sex determinations from peptides in tooth enamel and age estimations from tooth development in non-adults. The integration of these methodologies not only promotes a more comprehensive and fine-grained dietary approach at both an individual and a group level but also allows for a better understanding of the lifeways, social dynamics and funerary practices of those communities burying their dead in megalithic tombs of the middle Douro region during the 4th millennium BC.

**2300. EXPLORING THE IMPACT OF MULTIPLE SOCIO-POLITICAL TRANSITIONS ON HUMAN HEALTH AND LIFESTYLE IN ANCIENT AMPHIPOLIS, USING TEETH AS MULTI-PROXY TOOLS**

**Contribution format:** Oral  
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Amphipolis in northern Greece, experienced many different political models from the Archaic until the Roman times (6th c. BCE-2nd c. CE), including colonization, political autonomy, consolidation and imperialization. The BIOSOCIOPOLIS project, funded under a Marie Skłodowska-Curie frame, aims to develop a new interpretive model to reveal the extent to which multiple and consecutive socio-political transitions, affect human lifeways and deathways diachronically, from the less privileged individuals to the most favored “elite” groups. A well-contextualized sample from the inhumation burials of the diachronic cemeteries of Amphipolis has been selected on the basis of representation for the time period as well as for the diverse mortuary evidence linked to “elaborate” and “modest” burial features. To test whether the stated status-quo transitions were marked by specific impacts on health, diet and mobility, we implemented a multi-proxy approach combining macroscopic evidence with isotope analysis. Results on oral health (dental caries and calculus), physiological stress (enamel hypoplasia), diet (dentine carbon and nitrogen isotopes) and mobility (dental non-metric traits, tooth enamel oxygen and strontium isotopes) will be presented in conjunction with historical information and archaeological data. Dental results



based on macroscopic and isotope analyses will also be compared with cranial and post-cranial data. According to current results, health seems to have been negatively affected during the Roman transition, while a possible shift in subsistence strategies might have been present during the Classical transition, as suggested by calculus rates. The possible existence of socio-economic inequalities will also be investigated by analyzing results of lived reality in relation to mortuary criteria, such as the type of tomb, type of materials and number of artifacts. This approach, which is completely novel for historical populations of the broader region of northern Greece, is expected to induce significant progress, both on a methodological level, as well as for humanities in general.

**1704. ADDRESSING ACCIDENTAL INHALATION OF AIR POLLUTANTS THROUGH ANCIENT DENTAL CALCULUS: A CASE-STUDY FROM LATE NEOLITHIC COVA DAS LAPAS (PORTUGAL)**

**Contribution format:** Oral  
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The World Health Organization defines air pollution as the “contamination of the indoor or outdoor environment by any agents that modify the natural characteristics of the atmosphere”. Despite being a current concern among modern human populations, studying the presence of such agents and their impact on ancient populations is challenging. Dental calculus research focuses on analysing particles entrapped in mineralized dental plaque. It has the potential to identify accidentally inhaled airborne particles, providing information on air quality and health-related environmental contaminants. This work aims to identify and interpret the environmental particles identified in the dental calculus collected from Cova das Lapas natural cave (Alcobaça, Portugal), dated to the second half of the 4th millennium BCE. Furthermore, we explore the health impact of the identified particles on the studied population. Dental calculus was sampled and analysed using optical light microscopy, applying well-established methods. The remains were identified based on reference comparative collections and published literature. A total of 67 samples were studied (56 from permanent teeth and 11 from deciduous teeth). Among the 1846 microdebris found in the 67 samples, several types can be considered airborne agents, including charcoal (80.6%; 54/67) and mineral particles (19.4%; 13/67), fungal remains (62.7%; 42/67), as well as wood (34.3%; 23/67) and fibre fragments (60.7%; 34/56). The identification of environmental particles in calculus from deciduous and permanent suggests chronic exposure to respiratory irritants, which have been related to poor respiratory health in modern populations. This work allowed the identification of ecological agents known to affect air quality. Such particulates could have impacted the respiratory health of the people buried in Cova das Lapas. Despite the challenge of identifying the remains and their entrapment pathways, these findings show the potential of dental calculus in addressing environmental and health-related questions that are not accessible through skeletal analysis.

**1861. TEETH IN TRANSITION: ODONTOMETRIC ANALYSIS OF MESOLITHIC HUNTER-GATHERERS AND NEOLITHIC AGRICULTURAL COMMUNITIES IN THE DANUBE GORGES (9500-5500 CAL. BC)**

**Contribution format:** Oral  
**Contribution authors:** Nina Dragicevic – Sofija Stojkov – Jelena Marković – Mina Amzirkov – Sofija Stefanović (Department of Archaeology, Faculty of Philosophy, University of Belgrade)

The Mesolithic-Neolithic transition is one of the most significant processes in human history, profoundly impacting human biology, health, and dietary choices. During this transformative period, communities shifted from hunting and gathering to a sedentary, agricultural lifestyle, further influencing human development. In many regions, the transition to food production was accompanied by a reduction in craniofacial and dental dimensions. In this study, we investigate whether the Neolithic transition affected tooth dimensions in the Central Balkans, a key area for examining Neolithisation due to its strategic position at the crossroads of the Near East and Europe. To assess this, an odontometric study was conducted on the teeth of Mesolithic hunter-gatherers and the newly arrived Neolithic population in the Danube Gorges (9500–5500 cal. BC). To investigate potential differences in odontometric parameters between these two groups, we measured the mesiodistal and buccolingual diameters of permanent maxillary and mandibular molars using an optical digitizing device. Our sample includes individuals from Padina, Vlasac, Lepenski Vir, and Hajdučka Vodenica, for whom absolute dates and aDNA genotyping data are available. Previous studies enabled us to genetically determine whether individuals belonged to the hunter-gatherer or agricultural population. By comparing tooth size between these groups, we aim to reconstruct how

the mixing of populations, lifestyle shifts, and dietary changes affected teeth dimensions in the Danube Gorges.

**1655. EXPLORING HORMONAL DEFICIENCY DETECTION IN DENTAL TISSUES THROUGH BIOGEO-CHEMICAL ANALYSIS**

**Contribution format:** Oral  
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The relationship between health status and variations of trace element concentrations in mineralized dental tissues represents an innovative research field yet to be extensively explored through the lens of bioarchaeology. Coupled with biogeochemical studies, the study of microstructural and micromorphological features of dental tissues enables retrieving many biological variables associated with individuals’ life histories. A deeper understanding of the development and function of the endocrine system in past individuals is instrumental in elucidating the evolution of hormonal disorders, such as hypothyroidism. This study investigates the potential correlation between variations in trace element (TE) concentration in mineralized dental tissues and hormonal fluctuations using histology coupled with laser-based mass spectrometry (LA-ICPMS). To this end, five teeth from three contemporary individuals with known medical and nutritional histories were analysed, each with different forms of hypothyroidism and treatment histories: (a) congenital hypothyroidism treated with levothyroxine (L-T4) since birth; (b) untreated Hashimoto’s thyroiditis diagnosed in adulthood; and (c) untreated hypothyroidism discovered in childhood. These were compared with fifteen healthy modern individuals. TE variations were then measured in ten archaeological specimens. Results indicate significant differences in TE patterns between individuals with and without endocrine pathology and between treated and untreated cases. In non-pathological individuals, enamel’s Mg/Ca ratio decreases progressively from prenatal to postnatal periods. Treated hypothyroid individuals exhibit postnatal Mg/Ca concentrations comparable to healthy subjects, while untreated individuals show stable magnesium concentrations in pre-and postnatal enamel, without the expected decrease. Similarly, archaeological specimens exhibit consistent Mg/Ca concentrations between prenatal and postnatal enamel, lacking the anticipated decline. Conversely, Zn/Ca patterns reveal ambiguous trends. In healthy individuals, Zn/Ca remains uniform along the enamel-dentine junction (EDJ), whereas in pathological subjects, it fluctuates, suggesting disturbances during enamel mineralization. This study offers insights into disentangling past individuals’ life histories, offering a method to identify endocrine dysfunction in the past.

**1665. UNCOVERING THE LINK BETWEEN BREASTMILK CONSUMPTION AND VITAMIN D DEFICIENCY THROUGH HISTOMORPHOLOGICAL, ELEMENTAL AND STABLE ISOTOPE ANALYSIS**

**Contribution format:** Oral  
**Contribution authors:** Panagiota Bantavanou – Elissavet Ganiatsou – Christina Papageorgopoulou (Laboratory of Physical Anthropology, Democritus University of Thrace)

Dental Enamel Hypoplasia (DEH) and Interglobular Dentin (IDG) are pathological markers that result from insufficient secretion of mineral and organic substances and indicate physiological and metabolic stress during infancy. DEH has been correlated with infections and malnutrition, while IDG has been associated with Vitamin D deficiency. Despite extensive research, the causation of these conditions is not fully understood yet. In this project, we test the role of breastmilk consumption and weaning duration in the formation of DEH and IDG as critical factors of infant growth and development. For this, 26 individuals from ancient Thessaloniki, mostly dated to the Roman period (168 BC–324 AD) were analysed. Histological sections of the permanent canines were prepared and the severity and the exact age-at-formation of DEH and IDG was recorded microscopically. Stable isotope analysis of nitrogen and carbon coupled with Bayesian mixing modelling was performed on first permanent molars of the same individuals to estimate the duration of weaning and breastmilk proportions, respectively. XRF analysis performed to explore the elemental levels of calcium and phosphorus as crucial substances for the development of dentition and basic components of vitamin D. The preliminary combined results of our analyses show that



individuals consuming less than 50% of breast milk during weaning, developed multiple DEH and IDG defects (mean age 2.59 and 2.24 respectively), mostly formed close to the age of weaning or later (mean age at weaning 2 years of age) indicating that low breastmilk intake and early weaning correlate with the appearance of DEH and IDG. XRF results indicate a decrease of calcium and phosphorus levels when the pathologies occurred. Our assay provides fundamental understanding on infant health on aspects previously poorly understood. Funding: This research is part of the ERC-Consolidator Grant entitled CityLife (Project: 101126337).

**1837. HEALTH AND MORTALITY PROFILE IN THE NEOLITHIC: HISTOMORPHOMETRIC ANALYSIS OF DENTAL ENAMEL AND CEMENTUM FROM CERNICA (ROMANIA, 5240–4995 BCE)**

**Contribution format:** Oral  
**Contribution authors:** Beatrice Peripoli (Department of Environmental Biology, Sapienza University of Rome) – Raluca Kogălniceanu (1 Decembrie 1918 University of Alba Iulia) – Angela Simalcsik (“Olga Necrasov” Centre for Anthropological Research, Iași Branch of the Romanian Academy) – Emanuela Cristiani (Department of Oral and Maxillo-facial Sciences, Sapienza University of Rome) – Giorgio Manzi – Dušan Borić (Department of Environmental Biology, Sapienza University of Rome)

The Neolithic site of Cernica (Romania, 5240–4995 BCE) is situated in the Lower Danube Basin, a key region in European prehistory that served as a bridge between the Middle East and continental Europe. The Neolithic transition is one of the most fascinating periods in human history, marked by a profound shift in the relationship between humans and their environment. With the advent of agriculture, the health and mortality profiles of past communities underwent significant changes. Human teeth provide invaluable information for investigating these changes, as they permanently record physiological events during their formation. This allows researchers to examine the stress events occurred during dental formation and to estimate the age at death. In our contribution, we present the preliminary results of histomorphometric analysis of both dental enamel and cementum from the dental sample of the Neolithic cemetery of Cernica. The sample includes 30 permanent teeth from 12 individuals (4 incisors, 9 canines, 12 first molars). The main aim of this research is to outline the mortality profile by determining the age at death through the histomorphometric of dental cementum (Tooth Cementum Annulation – TCA). Additionally, we investigate health status during early infancy by analyzing enamel microstructures in order to identify incremental stress markers within the Crown Formation Time. For each tooth, a thin section was prepared along its mid-longitudinal plane. The sections were observed and analyzed under a transmitted light microscope under polarized light with different magnifications (5x, 10x, and 20x). The sample shows no significant diagenetic alteration, and the cementum is well-preserved in most cases, allowing for age-at-death estimation in 8 out of the 12 individuals. Histomorphometric analysis of the enamel reveals several stress episodes during early infancy, likely related to metabolic disturbance associated with several childhood morbidities (e.g. malnutrition, childhood illnesses, infections, and undernourishment during weaning).

**553. RECONSTRUCTING MEDICAL AND DIETARY PRACTICES IN ANTIQUITY: BIOARCHAEOLOGICAL EVIDENCE FROM CENTRAL ITALY (1ST-6TH CENTURY AD)**

**Contribution format:** Oral  
**Contribution authors:** Viola Cecconi (DANTE-Diet and Ancient Technology Lab, Sapienza University of Rome | Freelance anthropologist at the Bioarcheology Service, Museum of Civilizations, Rome) – Ilenia Gentile – Arianna Giordano – Elena Fiorin (DANTE-Diet and Ancient Technology Lab, Sapienza University of Rome) – Alexandra Dimitrova (FT-LAB Forensic Toxicology Laboratory, Department of Health Science, University of Florence) – Artnora Ndokaj (Department of Odontostomatological and Maxillofacial Sciences, Sapienza University of Rome) – Alessandra Sperduti (Bioarcheology Service, Museum of Civilizations, Rome | Department of Asia, Africa and the Mediterranean, University of Naples “L’Orientale”) – Livia Ottolenghi (Department of Odontostomatological and Maxillofacial Sciences, Sapienza University of Rome) – Fabio Vaiano (FT-LAB Forensic Toxicology Laboratory, Department of Health Science, University of Florence) – Emanuela Cristiani (DANTE-Diet and Ancient Technology Lab, Sapienza University of Rome)

Interdisciplinary research methods, including osteological and paleopathological analysis combined with molecular and biochemical studies, allow us to reconstruct ancient human biographies, providing insights into past populations’ lifestyles, activities, and health conditions, including diet and therapeutic practices. Among these methods, dental calculus analysis has become a crucial tool for investigating both human and environmental contexts. This mineralised matrix preserves bacterial communities, food residues, and therapeutic substances in a unique way, which would otherwise remain undetectable. While often considered independently, this study integrates its findings with broader osteobiographical data to investigate ancient medicinal knowledge and the

boundary between diet and healing. Our research examines 100 individuals with chronic diseases from archaeological sites in central and southern Italy (Isola Sacra, Velia and Amiternum), dating from the 1st to the 6th century AD. A multidisciplinary approach was employed, combining macroscopic assessment of skeletal lesions with advanced imaging techniques (MICRO-CT, 3D photogrammetry) and the study of oral health, including caries, abscesses, and ante mortem tooth loss. Microscopic analysis of calculus-embedded debris provides insights into dietary habits and possible occupational activities. To detect dietary and medicinal residues, optical and polarized microscopy was combined with biochemical and forensic analyses using gas chromatography-mass spectrometry (GC-MS) and liquid chromatography-tandem mass spectrometry (LC-MS/MS). These techniques shed light on ancient health strategies, offering new perspectives on dietary and phytotherapeutic practices.

**141. INSIGHTS INTO LIFESTYLES: THE PRODUCTION OF THREADS IN POPULATIONS FROM GRANADA (SPAIN) DURING LATE PREHISTORY**

**Contribution format:** Oral  
**Contribution authors:** Marina Lozano – Aristeidis Strimenopoulos (Institut Català de Paleoecologia Humana i Evolució Social (IPHES-CERCA) | Universitat Rovira i Virgili, Departament d’Història i Història de l’Art) – Sylvia Jiménez-Brobreil (Facultad de Medicina. Universidad de Granada) – Ángel Rubio-Salvador (Institut Català de Paleoecologia Humana i Evolució Social (IPHES-CERCA) | Universitat Rovira i Virgili, Departament d’Història i Història de l’Art)

Evidence of the use of teeth as tools appear early in our evolution. The activities performed with teeth vary through time. From the Neolithic period onwards, specialized tasks have been documented. This specialization affects not only the activities, but also the people in charge of them because only some of the individuals of a population carried out those tasks. One of the most outstanding dental wear features associated with non-masticatory activities are grooves on occlusal, mesial and distal surfaces. To characterize the morphology of the grooves is recommended to perform microscopic analyses. Here, we explore the suitability of a combination of different types of microscopy (scanning electron, digital and confocal) to describe and characterize grooves located on dental crowns. Our samples come from nine sites of the Granada province (Spain). Six out of the nine sites belong to El Argar culture dated to 1900-1450 cal BC and the other three sites, dated to Copper and Bronze Age, are not associated with El Argar culture. The results show that only some individuals of both groups present this type of grooves, moreover there are some differences in the grooves’ location on the dental crowns and the affected teeth among the samples. Methodologically, the combination of three different microscopic techniques allows a more in-depth analysis and improves precision of characterization of the grooves through the high-resolution images and measurements obtained. On the other hand, the specific methodological framework allows the extraction of information about the biological profile of the individuals such as sexual division of tasks, the age of the engagement on them, and for how long. All these pieces of evidence suggest that some individuals, especially women, were devoted to preparation of threads during Late Prehistory as a well-established task in the Argaric and non-Argaric societies.

**1714. BEHAVIORAL INFERENCES FROM DENTAL MICROWEAR STRIATIONS ON THE NEANDERTAL TEETH FROM PAYRE, FRANCE**

**Contribution format:** Oral  
**Contribution authors:** John Willman (Universidade de Coimbra) – Raquel Hernando (Centro Nacional de Investigación sobre la Evolución Humana (CENIEH)) – Marie-Hélène Moncel (UMR 7194 CNRS/MNHN-Département Homme Environnement, Musée de l’Homme)

Dental remains recovered from the site of Payre in the Rhône Valley of southeastern France have contributed significant information on lifeways of Neandertals in the region dating to between 250,000 and 125,000 years before present (MIS 8 to MIS 6/5). This study contributes data on labial and buccal dental microwear striations that relate to dietary and non-dietary behaviors (i.e., the use of teeth as tools). Gigapixel-like images (photomosaics) of enamel surfaces were taken with optical microscopy and one or more areas of interest were viewed at 50x to 100x magnification. Striation length and orientation were measured for each sampled area and a subsample of representative striation widths were measured. Average anterior tooth striation widths (mean: 26.63 µm, std: 21.00 µm, range: 4.83–95.68 µm) are considerably larger than striation widths on the posterior teeth (mean: 14.81 µm, std: 9.16 µm, range 4.05–77.33 µm), albeit there is overlap in the range of variation. There are no significant differences in the orientation of striations between anterior and posterior teeth and vertical striations are predominant. Enamel chipping is present on 2 of 4 anterior and 3 of 4 posterior teeth with complete crowns. Striation widths are particularly interesting as they are rarely observed using the same methodology for anterior and posterior teeth. The considerably wider widths on anterior teeth compared to posterior teeth indicate differences in tooth-use related to ingestive and non-dietary uses of the anterior teeth compared to the masticatory function of the posterior teeth. However, the presence of relatively wide striations on the posterior teeth encourage caution in



attributing all wide striations on the anterior teeth to non-dietary tooth-use behaviors.

2194. WHAT HAVE YOU BEEN DOING WITH YOUR TEETH? ATYPICAL DENTAL ALTERATIONS IN NEOLITHIC SAMPLE FROM HIPOGEU OF SÃO PAULO II

**Contribution format:** Oral  
**Contribution authors:** Ana Maria Silva (CIAS - Department of Life Sciences, University of Coimbra | CEF - University of Coimbra | UNIARQ - University of Lisbon) – John Willman (CIAS - Department of Life Sciences, University of Coimbra)

Dental remains are a valuable record of past activity patterns, including diet and occupational activities. Certain sets of behaviours or activities can produce particular and unintentional patterns of dental wear or alterations, and thus, reflecting non-masticatory and/or masticatory habits of the individuals. In order to illustrate the potential of dental studies to shed light on dietary habits and task-related activities of past populations, the dental remains exhumed from the rock-cut cave of São Paulo II are here examined. This tomb was used as a collective burial place since in the Late Neolithic/Chalcolithic, according to radiocarbon dating of human bones. The recovered human remains belong to a minimum number of 254 individuals, including 132 adults (> 15 years). Dental wear, including atypical one, and oral lesions (chipping, notching, grooves, LSAMAT and polish enamel surfaces) of the teeth of this collection were examined to assess information about non-masticatory behavior and oral pathology of these individuals, and thus insights of past activities that involved teeth.

1620. ORAL HEALTH OF THE POPULATION OF ORICUM (ALBANIA) DURING THE MIDDLE AGES

**Contribution format:** Oral  
**Contribution authors:** Ulsi Tota (Institute of Archaeology of Tirana, Albania)

The aim of this presentation is to present the state of oral health of the mediaeval population of Oricum (modern Orikum, Albania). The ancient city of Oricum is located in the southern part of Albania, in the coastal area, in the zone were the Adriatic sea join the Ionian sea. The sample analysed consist of the dental remains of 66 adult individuals (34 men and 13 women) excavated from the mediaeval cemetery (9 - 14th century AD) around the church in the acropolis of the ancient city of Oricos. In total were examined 627 teeth. To carry out this study, we took into consideration three pathologies most frequently encountered in our observations and which are dental caries, ante-mortem tooth loss and presence of dental calculus. Based in the observation we can say that with a frequency of caries which is around 13% and a presence of calculus around 34%, the percentages show an absence of dental hygiene and the consumption of soft foods, such as porridges rich in carbohydrates. The results for the food are also confirmed by isotopic analyses There are no big differences between the two sexes, although this conclusion should be taken with reservations due to the differences in the sample.

458. DENTAL DISEASE AS AN INDICATOR OF DIET AND HEALTH IN NON-ADULTS FROM URBAN AND NON-URBAN SITES IN LATE ANTIQUE SERBIA

**Contribution format:** Poster  
**Contribution authors:** Dragana Vulovic – Nataša Miladinović-Radmilović (Institute of Archaeology, Belgrade)

Children represent an important segment of the community and have an important role in reconstructing the health status of ancient populations. Dental diseases (i.e. caries and calculus) in childhood give us data about food availability, social status, and feeding practices, in addition to contributing to a child’s overall health status. Dental disease also causes infections and pain, which can later cause children to have problems with eating certain foods and, thus, directly affect their health and immunity. Caries analysis provides significant data on the cultural eating habits in children, especially if we do not have more precise data from historical sources on the type of food or drink consumed by children. The presence of caries in non-adults indicates the amount of intake of carbohydrates that have a cariogenic effect. Populations whose diet is rich in protein, such as meat and fish, present a lower frequency of caries. The high incidence of caries could indicate that high-quality food was less available to children and that a diet rich in carbohydrates prevailed. In this poster presentation, the results of a dental analysis of non-adult skeletal remains from two late antique necropolises from today’s Serbia will be presented. The dental analysis itself included frequencies of caries and calculus both on erupted permanent and deciduous teeth. We will compare the results of the dental analysis from two different late antique sites, one urban (Naissus, today’s Niš) and one non-urban (Begov Most – Staničenje, nearby Pirot) to see how different living conditions affect the dental health of children individuals.

1121. LYING THROUGH THEIR TEETH? A UNIQUE CASE OF BILATERAL TOOTH ROTATION FROM LBA KEFALONIA AND THE HALF-TRUTHS OF BIOARCHAEOLOGICAL STORYTELLING

**Contribution format:** Poster  
**Contribution authors:** Vicky Papagianni (National and Kapodistrian University of Athens) – Efrossini Vika (American School of Classical Studies at Athens) – Eleni Papafloratu – Grigoris Grigorakakis (Ephorate of Antiquities Kefalonia and Ithaca)

The concept of storytelling has in recent years gained momentum in archaeology, facilitating the powerful creation of a more relatable, emotive, and therefore understandable past. But how different is an account of events from a story? And is storytelling an inclusive, nuanced method of interpretation, especially when the protagonists are human bones? Arguably, osteoarchaeology in Greece has been given a lot more attention than its sister discipline, dental anthropology, a fact that in itself amplifies the importance of peculiar finds. Here, we present for the first time a unique case of bilateral mandibular premolar rotation, presenting together with dental non-metric traits. We discuss the etiology and bioarchaeological frame of this find by implementing a ‘story within the story’ approach: firstly, we reconstruct the context, investigating the significance of this characteristic within a living population. Then, we analyse the explanatory potential of the ‘unique find’ in bioarchaeological narratives and the ambiguity of its predictive importance, exploring how scientific analyses significantly amplify the performance of storytelling by providing an important element of critique.

1273. PALEOPATHOLOGY AND ORAL HEALTH FOR A HALLSTATT POPULATION IN SOUTHWEST GERMANY

**Contribution format:** Poster  
**Contribution authors:** Rocio Herrera Reyes (Independent) – Marta Díaz-Zorita Bonilla (Eberhard Karls Universität Tübingen)

This case study analyses a sample of 24 individuals from the site of Gewann Rebhuhn, located in Tauberbischofsheim-Impfingen, Germany, from the Hallstatt period (1200-450 BCE). This project aimed to firstly revise the conditions of the osseous material in present times, secondly to re-evaluate biological profiles, and thirdly to estimate the state of health and diseases focusing on dental health. Therefore, detailed information for every type of lesion was processed and used to get a more solid base to start further studies with quantitative and qualitative data. This set of individuals presents a variety of oral paleopathology. This includes lesions or defects on maxilla and mandible bones; inflammatory responses on the alveolar bone area, and dental diseases (e.g. developmental issues, dental traumas, and infectious illnesses). In addition to the paleopathology, the same individuals were examined with the ASUDAS method to obtain a perspective of the type of non-metric traits found in this population. Even though it is a small sample compared to the population recovered from this site; it is quite representative of many more individuals that were examined under another project, for the type of lesions that were seen. In other words, it shows the most prevalent dental paleopathology of this population for the Hallstatt period.

1327. RECONSTRUCTING PERINATAL MORTALITY IN THE PAST: A BIOARCHAEOLOGICAL CASE STUDY FROM 17TH CENTURY TRANSYLVANIA

**Contribution format:** Poster  
**Contribution authors:** August Stone (Florida Atlantic University Department of Anthropology) – Jonathan Bethard (University of South Florida Department of Anthropology) – Zsolt Nyárádi (Haáz Rezső Múzeum Department of Archaeology)

In recent years, bioarchaeologists have expanded their work to include fetuses and perinates. These studies have explored diverse geographic and temporal contexts around the world and investigated numerous questions ranging from those focused on maternal health to others which explore personhood and identity. Additionally, bioarchaeologists have recognized that work focused on fetuses and perinates might also inform contemporary questions about infant mortality. For example, current medical research has identified a pattern in neonatal infant mortality rates that differs between males and females. Male infants worldwide have an approximately 20% higher mortality rate than females in the perinatal period (up to 44 weeks gestational age). The cause for this difference is unknown. While males’ survival disadvantage is well documented in modern research, there is very little data on differential perinatal mortality rates in historic or archaeological contexts. This is largely due to the difficulty in estimating biological sex in skeletal remains prior to puberty; however, this study utilizes enamel peptides from tooth enamel to generate sex estimates from perinatal tooth crowns. Proteomic sex estimation utilizes the presence of the AMELY peptide in human dental enamel to identify the presence of a Y chromosome, signaling that the individual is genetically male. A sample of 49 perinatal individuals excavated from the Telekfalva Reform Church in the Székelyföld region of Eastern Transylvania is utilized to reconstruct male and female perinatal mortality patterns from a 17th century Transylvanian mortuary context. Results are compared to patterns seen in modern medical research to estimate similarities between past and present differential perinatal mortality rates.



1491. DENTAL WEAR ASSESSMENT ON ARCHAEOLOGICAL HUMAN SKELETONS OF EARLY BRONZE AGE (YAMNAYA CULTURE) DISCOVERED IN REPUBLIC OF MOLDOVA–A PRELIMINARY STUDY

**Contribution format:** Poster  
**Contribution authors:** Ozana-Maria Giorpac-Petraru (Faculty of Biology, “Alexandru Ioan Cuza” University of Iași) – Sergiu Popovici (National Agency for Archaeology, Chișinău, Republic of Moldova) – Mariana Popovici – Vasilica-Monica Groza (Romanian Academy, Iași Branch, “Olga Necrasov” Center of Anthropological Research) – Luminita Bejenaru (Faculty of Biology, “Alexandru Ioan Cuza” University of Iași | Romanian Academy, Iași Branch, “Olga Necrasov” Center of Anthropological Research)

Teeth are particularly important in the research of past human populations. The loss of dental tissues in archaeological context can be correlated with the physical properties of consumed food, preparation techniques, being also influenced by the environment through the ingestion of grit, and some activities using the teeth as “a third hand”. Even though there are many studies addressing dental wear characterization, the knowledge on dental macrowear in prehistoric human populations is still limited, especially in Republic of Moldova. This preliminary study focuses on the dental wear in 20 skeletons, belonging to adolescents and adults, and discovered during preventive archaeological excavations from the Republic of Moldova, in 2022-2024. The human skeletons subjected to this study come from five tumuli, being attributed to the Early Bronze Age, Yamnaya culture (3100-2400 BC). The degree of dental wear was assessed for all preserved teeth by the semiquantitative scoring system, and only the second molars (M2) were subjected to quantitative assessment based on dentine exposure (image analysis). The antemortem and postmortem tooth loss, antemortem fractures, calculus, and extreme dental wear were recorded. The results of scoring system indicate that the analysed teeth show all three wear grades (i.e., small, moderately advanced, and advanced). Chipping was identified in several individuals, in both anterior and posterior teeth. An anomalous dental wear probably related to non-masticatory uses of teeth has been described. The persistence of mandibular deciduous second molars was reported as anomaly in an adult male skeleton. The results of this study will be included in an overall survey regarding the dental macrowear in the human populations belonging to Yamnaya culture. These findings will also enhance a deeper understanding of how diet, daily activities, and environmental factors influenced dental wear.

1624. PECULIARITIES OF THE DENTITION IN HUMAN SKELETON SAMPLES FROM IRON AGE SITES I. SOUTHEAST ROMANIA

**Contribution format:** Poster  
**Contribution authors:** Vasilica-Monica Groza (Romanian Academy, Iași Branch, “Olga Necrasov” Center of Anthropological Research | Romanian Academy, Iași Branch, Institute of Archaeology) – Mariana Popovici (Romanian Academy, Iași Branch, “Olga Necrasov” Center of Anthropological Research) – Alexandru Berzovan – Lavinia Grumeza (Romanian Academy, Iași Branch, Institute of Archaeology) – Luminița Bejenaru (Romanian Academy, Iași Branch, “Olga Necrasov” Center of Anthropological Research | Faculty of Biology “Alexandru Ioan Cuza” University of Iași)

The human skeletal remains discovered in sites of both Early and Late Iron Age, on the territory of Romania, are relatively few, due to the widespread practice of incineration, which led to the damage of the bone material and poor preservation. A such situation creates gaps in the knowledge on archaeological human populations in terms of biological characteristics and evolution in this region. This study aims to reevaluate human skeletal remains, which date to Iron Age, discovered in Southeast Romania, with a particular emphasis on the dental analysis. By investigating morphological dental patterns, and pathologies, this work contribute to better understanding of the genetic diversity and health status of the Iron Age people in the specified region. The dental material analyzed here belongs to adult skeletons recovered from bi-ritual necropolises: Enisala, Histria, and Isaccea. The examination of morphological dental patterns focused on the occurrence and expression degree of non-metric traits, on the surface of the teeth. Specific features were identified in the development and expression of the metacone and hypocone cusps on the upper molars, the presence of accessory tubercles on canines, the Carabelli trait, as well as the angular torsion of the mandible. Dental pathologies such as hypoplasia, granuloma, and tooth loss suggest possible dietary deficiencies. Another significant aspect is represented by the presence of caries and the absence of dental calculus, which could indicate a predominant consumption of foods producing oral acidity. The results of this study provide clues to understand how these human groups adapted to environmental conditions, diet, and lifestyle, highlighting aspects of both biological evolution and cultural practices that influenced their oral health. This work was supported by a grant of the Ministry of Research, Innovation and Digitization, CNCS–UEFISCDI, Funerary landscapes in the Carpatho-Dniestrian area at the beginning of the Late Iron Age, PN-IV-P2-2.1-TE-2023-0015.

2049. THE ALMOST EMPTY GRAVES. RECORDING OF POORLY PRESERVED SKELETONS ON SITE

**Contribution format:** Poster  
**Contribution authors:** Vicki Rytøft Kristensen (Unit of Anthropology (ADBOU), University of Southern Denmark) – Kirsten Nielsen (Museum Silkeborg, Denmark)

The topography of medieval cemeteries is not arbitrary, and the distribution of interred individuals not random. Skeletal remains exhibit preservation biases with age, both the very young and the elderly, diseases and dating as factors. Consequently, it is important to recover as much data as possible from each grave. Often, one of the most enduring components of the skeleton is dental enamel, though it is difficult to detect in the ground, and very fragile. If carefully excavated, it is possible to assess and register tooth eruption patterns and dental wear on site, even if the teeth cannot be fully recovered intact. The information provides more accurate age estimates, and when combined with peptide analysis of enamel, can also yield sex determinations. Using the fully excavated medieval cemetery at Virklund, Denmark, as a case study, it demonstrates the additional insights that can be gained from such analyses. In this cemetery 15% of the graves contained only teeth while 25% contained teeth along with poorly preserved bone fragments. Only 21% of the graves contained well-preserved skeletons. Peptide analyses of 91 juvenile remains has allowed for the determination of sex, enhancing the materials suitability for demographic analysis. The sex determination of juvenile remains has never before been done for a completely excavated medieval cemetery in Denmark. While it is rare for graves to be completely derived for skeletal material these partial remains provide valuable information. The registration sheet used for this on-site registration will be shared, and suggestions for further improvements are welcomed.

65 EARLY NOMADS OF IRON AGE AROUND THE BLACK SEA: NETWORKS OF EXCHANGE AND INTERACTION

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** Scythians, Cimmerians, Black Sea, Caucasus, early nomads, Iron Age  
**Session organisers:** Denis Topal (National Museum of History of Moldova | Institute for Cultural Heritage) – Roberto Dan – Andrea Cesaretti (ISMEO – The International Association for Mediterranean and Oriental Studies)

SESSION ABSTRACT

The first millennium BC marked the spread of iron, the rise of nomadism, and a revolutionary shift toward cavalry. This era also witnessed the emergence of new social and cultural norms, through which the nomadic world shaped Eurasia’s historical landscape for the next two millennia. A distinct cultural space began to form, which may be described as the “Eurasian steppe cultural continuum of the Iron Age”. With the advent of the Iron Age, Eurasia’s steppe belt functioned as a cultural highway, linking distant regions from the Danube to the Huanghe River. Key research areas within this vast area include Southern Siberia for Asia and the Black Sea region for Europe, but future studies could also explore the cultural interconnections and influences that extended further westward. Hallmarks of early nomadic culture — such as weaponry, horse harnesses, funerary architecture, sculpture, and jewellery — highlight distinctive ways of life and social structure across these areas. However, the effects of this continuum were not limited to the Black Sea region alone. Other areas, such as the Balkans, Carpathians, and the Great Hungarian Plain, also experienced significant influences tied to these steppe cultures. Expanding the scope of research to include these regions offers a more comprehensive view of how nomadic groups shaped the broader Eurasian landscape. The main question is how nomadism influenced changes in lifestyle and social organization. To address this, this session presents new interdisciplinary approaches to examining the ecological, social, cultural, and economic transformations occurring between the Northern Black Sea region, Caucasus, Balkans, and Carpathians during the Iron Age. Acknowledging the diverse and multi-faceted nature of these cultural regions, and broadening the geographical scope, we can better capture the complexity and interconnectedness of these transformations.

CONTRIBUTION ABSTRACTS

1757. SCYTHIAN ARCHAEOLOGICAL CULTURE: PROBLEM OF DEFINITION

**Contribution format:** Oral  
**Contribution authors:** Oksana Lifantii (National Museum of the History of Ukraine)



The first Scythian complex was excavated in the North Black Sea region more than 260 years ago, and since then, a massive amount of literature has been devoted to Scythian culture. However, the difference in understanding the fundamental questions of Scythology is more significant than ever. At first, the researchers’ question of meaning arrived when they understood that the Forest-Steppe population in Scythia could not be ethnic Scythians. Thus, the term Scythian culture was not fair to them. Then, the question of Early Scythian monuments, the Asian monuments in the Altai mountains, etc., arose. Many researchers used the terms “early Scythian culture”, “Scythian animal style”, and the like without referring to the actual Scythian ethnicity. So, in essence, the scholars recognised the lack of alternatives to this term. As some have already noted, no quotation marks near the word “Scythian” and no additional reservations about the need to distinguish between “ethnic” Scythians and “archaeological” Scythians will save neither authors nor readers from unintentional confusion in understanding these concepts. Archaeological cultures named after people known from written sources, willingly or unwillingly, carry the corresponding ethnic “colouring”. Some specialists in the eastern territories of the Eurasian steppe use the term “Scythian-Saka time”, but even such a more neutral formulation is not gaining popularity. It is especially noticeable in articles on STEM research. Thus, in the obligatory historical reference at the beginning of such works, the authors may indicate (but not always) that they understand the ethnic heterogeneity of the analysed cultures, but still, “for simplicity”, use the term Scythians about all nomads of Eurasia of the Iron Age. The titles and conclusions of such articles are very loud, but this loudness is mainly the result of the simplification of terms and not the uniqueness of the knowledge obtained.

351. GOLD, FIRE AND SCYTHIAN “ROYAL” TOMBS IN THE WESTERN PART OF THE PONTIC STEPPE

**Contribution format:** Oral  
**Contribution authors:** Denis Topal (National Museum of History of Moldova | Institute for Cultural Heritage) – Roberto Dan – Andrea Cesaretti (The International Association for Mediterranean and Oriental Studies)

The most original feature of the funeral rite of the Scythian communities in the western part of the Eurasian steppe is the burned wooden tombs under the barrows. Most of them are connected to the Dniester River, such as the Dubăsari burial ground. Based on the available data, burned wooden tombs appeared among the Scythians of the northwestern Pontic region during the Middle Scythian period. This practice continued until the end of the Classical period, but there is a notable chronological gap between these two phases. Most of the early burned tombs date back to around the mid-6th century BC. Later burned tombs among the Scythians of the northwestern Black Sea region do not appear until the late 5th century BC, with the majority dating to the second quarter of the 4th century BC. Based on satellite imaging data, another presumed Scythian mound with a diameter of more than 100 m has been identified. Satellite images clearly show three artificially created circles in a field adjacent to the northeastern outskirts of the village of Lărguța, in the Cantemir district of the Republic of Moldova. If our assumptions are at least partially confirmed, the mound near Lărguța could become one of the first excavated mounds of the Scythian high nobility west of the Southern Bug, in an area traditionally considered to be on the periphery of Scythian culture. In addition, as experience shows, the most significant cultural interactions occur at borderlands, so the potential “royal” mound situated at the intersection of the Scythian and Thracian worlds could represent a unique discovery in the entire history of Scythian archaeology.

2201. THE MALYI VYSTOROP HILLFORT: ON THE QUESTION OF THE ROLE AND FUNCTION OF CERTAIN FORTIFICATIONS OF THE SCYTHIAN PERIOD

**Contribution format:** Oral  
**Contribution authors:** Oleh Bilynskyi (National University of Kyiv-Mohyla Academy)

The hillfort near the village of Malyi Vystorop (Sumy region, Ukraine) has been actively researched over the past two years. During this time, the internal layout system has been traced, and a number of structures and artifacts have been discovered. Based on Greek amphorae, the site is dated to the transition between the 6th and 5th centuries BC. The most intriguing structure is a building that was likely used for production purposes. Inside and around it, materials have been found that indicate the development of metallurgy at the site and possibly jewelry-making. The hillfort is sparsely populated but features a powerful fortification system. The available materials suggest a relatively high standard of living for its inhabitants. These factors, combined with a high level of production, may indicate that the site functioned as a fortified workshop. Such settlements with a clear specialization are characteristic of early urbanism, raising the question of the existence of similar sites in Forest-Steppe Scythia.

1988. SCYTHIAN PERIOD PINS OF THE SEYM REGION

**Contribution format:** Oral  
**Contribution authors:** Yuliia Khodukina (National University of Kyiv-Mohyla Academy)

The Seym Region, located at the northern border of Forest-Steppe Scythia, extends further north into the territories of forest cultures, earning it the designation of a “borderland zone.” This region is characterized not only

by its proximity to forest cultures but also by a narrow chronology of sites, minimal influence from nomads, and the absence of burial sites. The source base for this research comprises 52 metal pins, exclusively originating from published settlement sites dated to the Scythian period. The study utilizes the typology developed by V.G. Petrenko, based on three primary characteristics (head shape, shaft cross-section, and neck shape) and additional features (material and ornamentation). The research identified 11 types of metal pins from the Seym Region and three unique forms that have no parallels within Scythia. Among these are a shield-shaped pin, a stylus-shaped pin with twisted ornamentation, and a pin with a bifurcated shaft. This study aims to expand knowledge about the material culture of the Seym Region by emphasizing the unique characteristics of these artifacts, their manufacturing technologies, and the influences of neighbouring cultures. At the same time, it highlights the need to move beyond typological classifications and recognize ornaments as works of art, reflecting the imagination and experimentation of their creators. The proximity to forest cultures, as previously mentioned, may have inspired some artisans to imitate or incorporate creative elements into their designs.

674. GREEK ARMOUR IN THE SCYTHIAN CULTURE: ORIGIN, SYMBOLIC MEANING AND PRACTICAL USAGE

**Contribution format:** Oral  
**Contribution authors:** Oleksandr Shelekhan (Institute of Archaeology, National Academy of Sciences of Ukraine)

Starting from the 7th c. BC, Eastern Europe became an area of mobile horse riders known as the Scythians. At the same time, the northern shores of the Black Sea appeared to be the northernmost area of Greek colonisation. Tracing the exchange of military technology shows examples of cross-cultural interaction while Greek armour is considered to be evidence of changes in the non-Greek communities. In total, 69 Scythian sites with Greek helmets and greaves are known. Two helmets were chance finds, while the rest of the artefacts were grave goods. The main area of their dissemination lay near the Lower Dnieper course, where the main kurgans of the Royal Scythians were erected. For sure, the foreign weapons had additional value after appeared in the hands of the Scythians. But the bright evidence of everyday use and numerous modifications testify to quite a pragmatic attitude. The Scythians didn’t elaborate their own type of quasi-Antique armour or parade derivatives of it like Thracians and Maeotians did. As a rule, they just used products available to them, sometimes making them lighter for horse riding. The earliest finds belong to the 5th c. BC. But the majority of them were gained in the 4th c. BC, during the Spartocid’s expansion when nomads stood as allies or mercenaries. Therefore, they can be considered not as spoils of war, but as diplomatic gifts received during successful campaigns. It was the period when panoply in the Mediterranean also became lighter, together with an increasing part played by mercenaries in the armies. So while providing armour to the Scythians, the Bosporan Greeks achieved two goals: to enlist the support of an ally and at the same time get rid of outdated armour, the need for which gradually decreased.

2259. THE CAUCASUS AT THE CROSSROADS OF EURASIAN HORSE RIDERS

**Contribution format:** Oral  
**Contribution authors:** Sabine Reinhold (Eurasia-Department German Archaeological Institute)

The first millennium BCE in the Eurasian steppe is considered to be the millennium of the first mobile horse nomads. Based on Ancient Oriental, Greek and Roman historiography, for the first time names of certain tribes appear on its western edge; an early history of the steppe peoples seems within reach. However, the ethno-historical interpretation of archaeological materials in the orbit of ancient literate cultures has created numerous problems. This becomes particularly evident when looking at the Caucasus. The role of the interaction between Caucasian groups and mobile Eurasian ones is pivotal and objects, like cultural practices, were circulating in the regions north of the Caucasus, the Crimea and the Black Sea region from the 9th century BCE onwards at the latest – but maybe everything started much earlier? Recent bioarchaeological evidence suggests a sporadic presence of individuals with Central Asian connections at the start of the first millennium BCE. Among them is an individual who consumed horse milk and dates to the early 9th millennium cal. BCE from a site in the North Caucasian foothills (Scott et al. 2022). In this talk, I will critically review the interaction between local Caucasian populations and mobile groups, considering the latest bioarchaeological research. These new indications challenge paradigms, but also offer an opportunity to re-evaluate the significance of the mutual interaction.

810. PRE-SCYTHIAN HORSE HARNESSES IN THE KOBAN NECROPOLIS

**Contribution format:** Oral  
**Contribution authors:** Sergey Makhortykh (Institute of Archaeology Ukrainian Academy of Sciences) – Nadiia Kotova (Institute of Archaeology Ukrainian Academy of Science)

Horse equipment is one of the most important and vivid categories of the material culture in the 9th-7th centuries BC. It is essential for chronological reconstructions and the study of cultural contacts between different regions in antiquity. The aim of the present paper is to provide a general overview followed by a discussion of



the metal and bone horse harnesses found in the Koban cemetery (North Ossetia), one of the most prominent and largest burial sites of the Koban culture. It should be noted that among all the necropolises excavated in the mountainous Central Caucasus, it is only the Koban burial ground is characterized by a numerous and diverse composition of various pre-Scythian types of bridle accessories (for example, at least five distinct types of both bits and cheekpieces are presented here). This testifies in favour of a long-term and productive interrelation of the Koban community with the early nomads (Cimmerians). The rise of nomadism in the early 1st millennium BC brought about a revolution in communications. The horse could be used to explore new territories, in raiding and trade. A mobile life-style helped to create a new set of cultural and social patterns of behavior. On the basis of Caucasian material, it can be argued that these changes affected social structures (the development of elite groups of horsemen who benefited from long-distance exchanges), the economy (changes in the structure of animal breeding) and warfare (the effective use of cavalry in warfare, which required well-trained horses and riders), as well as religious practices (the appearance of the inhumation graves with horse gear).

850. IRONWORKING AND SCYTHIANS IN COLCHIAN PLAIN: AN OVERVIEW

**Contribution format:** Oral  
**Contribution authors:** Andrea Cesaretti (ISMEO - The International Association for Mediterranean and Oriental Studies)

The Colchian Plain represents one of the most distinctive environmental settings in the South Caucasus. It is a vast coastal area traversed by numerous rivers, the most significant of which is the Rioni River. Despite being one of the primary maritime outlets of the region, large portions of the plain are characterised by wetlands and marshes. These environmental conditions significantly influenced the settlement strategies of local communities, leading to distinct settlement pattern and land use. Despite the relative scarcity of raw materials in the lowlands, Colchis quickly became a key centre of metallurgy in the South Caucasus, a characteristic emerged during the Bronze Age and became particularly prominent in the Late Bronze Age and Iron Age. Sites such as Vani and Ureki have yielded substantial evidence of metalworking, underscoring the region’s pivotal role in production and exchange networks. A particularly significant aspect of the Iron Age in Colchis is the presence of Scythian-related material culture, dated between the 8th and 6th centuries BCE. Among the most notable finds are numerous akinakes-type swords, trilobate arrowheads, gold plaques with zoomorphic decorations, and bronze mirrors, recovered primarily from funerary contexts or as isolated deposits (e.g., Ureki, Vani). While ancient sources often depict Scythian-Colchian interactions in terms of conflict and raids, archaeological evidence suggests a more complex reality, involving both cultural exchange and trade. The metallurgical expertise of Colchis may have facilitated economic interactions with steppe populations north of the Greater Caucasus, indicating that these relationships were not solely based on violence and invasion. This paper aims to provide an overview of the Scythian-related materials found in Colchis, exploring the dynamics of interaction between the region’s inhabitants and the nomadic groups of the Eurasian steppe, with particular attention to the role of metallurgy in shaping networks of contact and exchange.

927. RETHINKING “SCYTHOID” OBJECTS IN IRON AGE BURIALS OF THE SOUTH CAUCASUS

**Contribution format:** Oral  
**Contribution authors:** Ruben Davtyan (State Office for Heritage Protection and Archaeology)

The presence of archaeological material linked to the Cimmerian and Scythian invasions in the South Caucasus has long been a subject of research and debate. The central question is whether objects with a “Northern” repertoire can be assumed to indicate the cultural belonging of nomadic groups, or whether they might have been produced and used by local populations. This presentation examines Iron Age tombs from Lori Berd in Northern Armenia, where only a small number of so-called “Scythoid” objects were found within an otherwise extensive archaeological assemblage. Through contextual analysis of these artefacts and comparisons with similar finds from the region, it is argued that while Eurasian nomads left a significant imprint on local material culture in rhe South Caucasus, hardly any burials from the 7th–6th centuries BCE there can be definitively attributed to Scythians or Cimmerians. Nevertheless, my aim is to showcase the material groups in which “Scythoid” objects were most frequently found Furthermore, evidence from Lori Berd suggests that in some cases, Scythoid artefacts were deliberately placed separately – perhaps to distinguish them from Urartian objects – indicating their potential role as war booty rather than markers of nomadic identity.

1735. “SCYTHIAN” ARROWHEADS IN WESTERN ASIA – NEW INSIGHTS INTO A LONG-STANDING DEBATE?

**Contribution format:** Oral  
**Contribution authors:** Anja Hellmuth Kramberger (Univerza Alma Mater Europaea)

Assyrian cuneiform texts from the 8th and 7th centuries BC describe the first encounters with mounted warrior

tribes attacking the neighboring kingdom of Urartu. These texts distinguish between two groups, the Gimirraia and the Ischkuzaia, which some scholars equate with the Cimmerians and Scythians based on Herodotus’ accounts in his fourth book. However, Herodotus also notes the diversity of tribes inhabiting the Northern Black Sea and steppe regions, making strict ethnic classifications highly problematic. To address this issue, scholars often use more neutral terms, such as “Eurasian nomadic,” when referring to the material culture of these groups. A particularly long-standing debate concerns the distribution of so-called “Cimmerian” and especially “Scythian” arrowheads beyond the core region of mounted nomadic culture in the Northern Black Sea area. Can the presence of these arrowheads in Western Asia be interpreted as evidence of invasions by mounted warrior groups? How do these artifacts relate to other weapons and the written historical record? This contribution will examine the occurrence of “Scythian” arrowheads in 8th–6th century BC contexts in Western Asia, exploring their significance within the broader framework of military campaigns, historical events and cultural interactions.

992. SCYTHIANS AND THE FALL OF URARTU: A PERSPECTIVE FROM KARMIR-BLUR AND ITS ROLE IN THE ADMINISTRATION OF THE URARTIAN STATE

**Contribution format:** Oral  
**Contribution authors:** Roberto Dan (ISMEO) – Nzhdeh Yeranyan (History Museum of Armenia)

The site of Karmir-Blur, located near Yerevan, is crucial for studying Urartian culture and the dynamics that led to the dissolution of Urartian power, marking the transition to the Orontid/Achaemenid period. Founded in the first half of the 7th century BCE by Rusa II, the site was excavated for decades under the direction of Boris Piotrovsky on behalf of the Hermitage Museum in St. Petersburg. Research has uncovered well-preserved architectural structures and a vast number of Urartian and non-Urartian artefacts, often in excellent condition, including many inscribed objects. These discoveries have provided essential insights into Urartian culture and the site’s final moments before its destruction. Recent studies on the materials unearthed have led to a reassessment of Karmir-Blur’s role during the final stages of Urartu. Contrary to previous assumptions, the site was not simply abandoned but was reoccupied during the Orontid/Achaemenid period. This presentation will provide an overview of the site, which is unique among Urartian fortified and administrative centres, and will examine interactions with the steppe world, particularly the Scythians. The reassessment of artefacts preserved in the History Museum of Armenia has revealed a rich and complex picture that remains largely unexplored. Despite more than a century of Urartian studies, significant gaps persist, particularly regarding the lesser-documented phases of its history and the cultural and military interactions with both nomadic and non-nomadic groups, such as the Phrygians and Scythians in the 7th century BCE. These aspects remain central to a deeper understanding of the transformations of the period.

594. BRIDGING VALLEYS: AGENTS OF MOBILITY AND THE RISE OF THE VENETIC EQUESTRIAN TRADITION

**Contribution format:** Oral  
**Contribution authors:** Ronak Alburz (University of Melbourne)

While a notable cultural division persisted between Central Europe and the Mediterranean world until the Roman era, similarities in Iron Age horse-burial practices across the southeastern Pannonian Plain, the southeastern Alpine region, and Veneto suggest sustained interregional contacts. Crucially, affinities between Venetic and Carpathian horse breeds further reinforce this connection. Despite various hypotheses regarding the trade or exchange of horses, the mechanisms of interaction and the actors involved remain obscure—as do the origins of Venetic equestrian traditions, which stand apart from those of contemporary northern Italy and Central Europe. Against this backdrop, this paper examines the emergence of Venetic equestrian culture and its possible connection to the contemporaneous reintroduction of inhumation rites in the Veneto during its formative phase (9th–7th centuries BCE). Through a focused case study, it identifies key agents of change and explores the intertwined trajectories of human and animal mobility to assess whether shared traits in horse-related traditions arose independently or reflect the influence of Pannonian horse culture.

1641. THE WANDERING TORQUES: THRACIAN-SCYTHIAN-GREEK INTERCONNECTIVITY AND CULTURAL APPROPRIATION

**Contribution format:** Oral  
**Contribution authors:** Maria-Magdalena Stefan (National History Museum of Romania)

The presentation will explore the cultural and functional significance of the Bunești-Averești diadem, a gold artifact traditionally associated with the North-Thracian milieu east of the Carpathians. Recognized early on as the product of a Greek workshop and dated to the 3rd century BC, the object was reportedly discovered in a pit within a fortified local settlement. Reassessing its function as a torques rather than a diadem invites comparisons with the North Pontic steppe, where spiralic torques with feline finials are well-attested in the rich female burials of Scythian nobility from the second half of the 4th century BC. As a variant of a widely recognized



status symbol, such torqs played a key role in elite representation and identity. Unlike its funerary counterparts in the North Pontic region, however, the Bunești-Averești piece appears to have been appropriated and ritually deposited, likely in a local sanctuary. This practice foreshadows a ritual model that would become emblematic for Pre-Roman Dacia in the following centuries—namely, the burial of hoards containing elements of ceremonial female attire. By examining the artifact’s production features, its possible trajectory to the region east of the Carpathians, and its subsequent conversion in function and meaning, this analysis seeks to illuminate broader patterns of exchange and interaction along the northwestern fringes of the Black Sea. It argues for the role of the North-Thracian space as an intermediary between nomadic and classical worlds, facilitating the movement of objects, styles, and ritual practices between the Greek, Scythian, and Thracian spheres during the late 4th and early 3rd centuries BC.

354. OLBIO UNDER SARMATIAN RULE IN THE LATE 1ST CENTURY AD

**Contribution format:** Oral  
**Contribution authors:** Oleksandr Symonenko (Institute of Archaeology of NAS of Ukraine)

Having come to the North Pontic steppes, the Sarmatian society was on the early class stage. Under this system the political power was concentrated in the hands of the most lucky and able military leaders – the chiefs of tribes or hordes. There is no doubt that Sarmatian society was organized by some way. In addition to the general historical logics, this is proved also by the terms ‘king’, ‘ruler’ etc. used in the written sources with regard to Sarmatians. The higher nobility burials of the second half of the 1st – early 2nd centuries AD are concentrated in the Middle Dnister basin, then south, in the Southern Bug basin and in the Middle Dnipro region. It can be argued that these aristocratic necropolises points to the centers of tribal groups. In 1984 the Sarmatian “royal” burial has been discovered in the barrow near Porohy village in Western Ukraine. In this grave the most reach and sacral items (ritual silver cup, golden torque, sets of ceremonial belts, and sword scabbard) have a tamga-signs similar to the signs on the Olbian coins of kings with Sarmatian names Inismeos and Farzoios. The spectacular Oriental coloration of the grave goods from Porohy, especially status belts, torque and bracelet, the Oriental bow with the arrowhead of Xiongnu type are characteristic for the subculture of Alanic nobility. Obviously, kings Farzoios and his son (?) Inismeos made the alliance with Olbian state. Most probably, it was a political union with a nominal Sarmatian leadership, as was often in use among nomads. In such case Sarmatians usually visited the city, which is justified by the finds of numerous tamga-signs and Sarmatian items on the whole territory of Olbian state as well as by Sarmatian burials along the state borders.

1676. LIFE AND DEATH IN THE EAST CARPATHIAN REGIONS AT THE BEGINNING OF THE LATE IRON AGE (5TH-3RD CENTURIES BC)

**Contribution format:** Poster  
**Contribution authors:** Lavinia Grumeza – Alexandru Berzovan (Romanian Academy, Iași Branch, Institute of Archaeology)

The period between the 5th–3rd centuries BC was a particularly dynamic time in the Carpatho-Dniester region, an area located at the crossroads between the North Thracian and Scythian worlds. This is evidenced by approximately 130 hillforts, a series of hoards, and a large number of funerary discoveries, highly diverse typologically, ultimately bearing witness to a complex ethno-cultural picture. Through this presentation, we aim to briefly present the main funerary discoveries in the area, focusing on specific elements that connect the region of interest to the Balkan world, Central Europe, and the Eastern Steppes. Challenging older historiographical views that imposed rigid boundaries between ‘Thracians’ and ‘Scythians’, our analysis aims to provide a much more nuanced understanding of the local communities that lived and thrived in this territory two and a half millennia ago. This work was supported by a grant of the Ministry of Research, Innovation and Digitization, CNCS-UEFISCDI, Funerary landscapes in the Carpatho-Dniestrian area at the beginning of the Late Iron Age, PN-IV-P2-2.1-TE-2023-0015.

68 EDUCATING FOR TOMORROW: PEDAGOGY AND CULTURAL HERITAGE DIALOGUES

**Session theme:** 6. Intertwining archaeology, heritage, and museums  
**Session format:** Discussion session  
**Session keywords:** cultural heritage education, future professionals, reskilling and upskilling, teaching methodologies, pedagogical strategies  
**Session organisers:** Federica Di Biase (University of Cyprus) – Francesca Porta (University of Bologna)– Francesca Romana Fiano (University of Ferrara)

SESSION ABSTRACT

The intersection between education and cultural heritage involves three main aspects: teaching future professionals, educating diverse publics, and reskilling and upskilling current practitioners. While UNESCO’s position in safeguarding cultural heritage through preservation and education highlights the mutual benefits of integrating these two disciplines, cultural heritage education faces widespread challenges, including funding cuts, reduced teaching resources in universities, and policy reforms that threaten the teaching of history and art in schools. This session is intended as a space for archaeologists and cultural heritage professionals to share theoretical insights and practical experiences from their roles as educators and/or learners within specialized training programs. We welcome contributions that critically discuss courses design, hands-on teaching and learning in laboratory settings, the integration of digital tools for remote instruction, and other innovative methodologies. Special focus will be placed on the challenges encountered, strategies for enhancing learners’ engagement, and effective methods for conveying complex cultural heritage issues. Recognizing education as a powerful tool for addressing social changes, this session aims to promote the integration of insights from both pedagogy and cultural heritage disciplines. By presenting our research, we seek to foster dialogue on best practices and future directions in cultural heritage education, ensuring that education remains central to the sustainable management, preservation, and promotion of cultural heritage.

CONTRIBUTION ABSTRACTS

1412. THE ROLE OF EDUCATION IN EQUIPPING CULTURAL HERITAGE PROFESSIONALS FOR THE DIGITAL ERA

**Contribution format:** Oral  
**Contribution authors:** Federica Di Biase (University of Cyprus)

In 2021, following the evaluation of the previous recommendation on the online accessibility of cultural material and digital preservation (EU 2011), the European Commission emphasized the urgent need to accelerate the digitization of cultural heritage. This initiative aims to ensure that Member States actively contribute to the objectives of the Digital Decade. While many cultural heritage institutions have embraced various digital technologies to expand their offerings, enhance collection promotion, and enrich visitor experiences, others continue to struggle with formulating a coherent digital strategy. For these institutions, digitization remains more of an abstract concept than a concrete reality. Giving insights from the MEDISHARE project, this presentation examines the current state of digitization in cultural heritage institutions on small Mediterranean islands, with a particular focus on Cyprus, as well as islands in Italy, Croatia, and Greece. Assessing the level of digitization serves as a foundation for establishing a dialogue with institutions to identify their needs and those of cultural heritage professionals, ultimately supporting them in advancing the digitization process. Addressing digital disparities among institutions and professionals is crucial to enabling small and remote museums to keep fulfilling their role as agents of social change and education. Employing a mixed-methods approach that combines traditional research—such as a literature review—with social science methodologies, including questionnaires and interviews, this study highlights the need for tailored open educational resources and targeted training workshops. By fostering digital inclusion, the project seeks to empower cultural heritage institutions to navigate the digital transformation more effectively.

1390. LEARNING BY DOING: GIS AND DIGITAL ARCHAEOLOGY IN HIGHER EDUCATION

**Contribution format:** Oral  
**Contribution authors:** Margherita Bottoni (Roma Tre University) – Federico Fasson – Elisa Giunta (Roma Tre University) – Angela Paolini (Ministero della Cultura - Soprintendenza Speciale per il PNRR) – Matteo Rossi – Emeri Farinetti (Roma Tre University)

Within the framework of GIS and digital archaeology education, which has significantly reshaped both research methodologies and teaching practices, this paper explores the Landscape and Digital Archaeology Laboratory at Roma Tre University as a case study of an innovative learning environment. The course combines archaeological methodologies with digital tools, providing students with hands-on experience to explore the complex relationship between humans and their environment while developing transferable skills. The course structure includes a theoretical section, hands-on exercises, field activities, and topic-based sessions, with a strong emphasis on GIS and digital technologies applied to archaeology. A key feature of the laboratory is the customization of learning paths, designed to accommodate the interests and academic backgrounds of students from various fields, including archaeology, history, and geography, at both undergraduate and graduate levels. This diversity is also reflected in the teaching staff, which includes archaeologists, architects, geologists, and geophysicists at various career stages, fostering dynamic student-tutor interactions that bridge generational gaps and enhance experiential learning. Interdisciplinarity is central to the program, with collaborations involving institutions



dedicated to environmental protection, research, and preservation of cultural heritage. This wide network enables students to engage in diverse perspectives on landscape analysis and heritage management. Students also have the opportunity to work with real research data, making them active participants in the research process and providing strong motivation for their learning. Collaborative platforms for sharing archaeological landscape data encourage discussions on open science, data sharing, and reuse, fostering a participatory approach to archaeological research. Structured evaluation and assessment tools are used to analyse student perceptions of key topics and implement effective engagement strategies, promoting active student participation throughout the learning process. Reflexive practices ensure the continuous improvement of educational experience, enabling iterative adjustments and the ongoing refinement of teaching methodologies and content.

132. FROM CLASSROOM TO HERITAGE: BRIDGING PEDAGOGY AND CULTURAL HERITAGE PRESERVATION

**Contribution format:** Oral  
**Contribution authors:** Nikola Babucic – Martina Seifert (University of Hamburg)

This paper discusses a mentoring approach developed through interdisciplinary training programs at the Archaeological Park of Xanten (Colonia Ulpia Traiana). Since 2013, the Institute of Classical Archaeology at the University of Hamburg has been setting up annual field schools focused on non-destructive archaeological methods, which aim to integrate theory and practice to train future professionals in both archaeological and cultural heritage preservation disciplines. The program’s structure divides into two parts: a theoretical seminar introducing the archaeological site and its historical significance, followed by a practical field module where students apply geophysical methods, such as magnetic surveys, ground-penetrating radar (GPR), electrical resistivity tomography (ERT), and geodesy (Total Station/DGPS). Our goal is to equip students at an early stage of their studies with the technical skills required to generate and interpret subsurface data while fostering a deeper understanding of cultural heritage preservation in a sustainable manner. This paper explores the pedagogical strategies used in our training programs, emphasizing hands-on learning and the integration of digital tools for remote and in-field instruction. We aim to discuss how these methods not only prepare students for the future of archaeology but also enhance their ability to contribute to the sustainable management and preservation of cultural heritage. In line with the session’s theme, we will reflect on the challenges faced in cultural heritage education, such as limited resources, changing curricula, and the evolving demands of heritage professionals. We will also highlight the broader international and interdisciplinary context in which our field schools operate, fostering dialogue on best practices and strategies for enhancing student engagement and knowledge transfer. By sharing our experiences, we hope to inspire further discussion on the integration of pedagogy and cultural heritage in education, ensuring that education remains at the core of cultural heritage preservation efforts.

1280. MODELLING INTERDISCIPLINARY COOPERATION IN AN EDUCATIONAL ENVIRONMENT THROUGH THE CASE STUDY OF MATRICA

**Contribution format:** Oral  
**Contribution authors:** Katalin Wollak (Independent heritage expert) – Zoran Vukoszávlyev (Budapest University of Technology and Economics)

The preservation of cultural heritage keeps facing new challenges in the 21st century. While advances in scientific methods contribute to a deeper understanding of various subjects, putting the new findings to use is significantly hampered by a lack of interdisciplinary dialogue. In Hungary, separate university trainings are available for future professionals specialised in archaeological, architectural and cultural heritage. It is essential to bring these highly specific fields closer together, as the transmission of cultural values can only succeed through a cooperation of numerous actors. In addition to developing a holistic vision of different disciplines, work must be done to reinvigorate the links between the professions involved in cultural transmission. We conduct a methodological experiment to respond to this systemic challenge. Our post-graduate training is unique in the Hungarian education system, as it is open to architects, civil engineers, archaeologists, restorers, historians, art historians and heritage managers alike, and explicitly aims to co-train professionals from different fields jointly. In addition to facilitating knowledge transfer in heritage management, we are also modelling a project that aims to explore the mindsets typical of the various collaborating disciplines. With students from different backgrounds, we examine the possibilities of development at an archaeological heritage site through exploring the hidden values of the site with the help of experts, studying interests in consultation with local government and community stakeholders, and considering the social impact of the planned development. This joint endeavour helps students to learn about focus areas in the internal operational framework of other disciplines. Understanding and accepting priorities and working collaboratively promotes good practice across disciplines, preparing the students for real-world co-operations. In our presentation, we outline the stages of this interdisciplinary cooperative work through a case study on the heritage values of the Roman camp of Matrica in Pannonia.

2167. HERIT-AWARE: AN INTERDISCIPLINARY GAME ABOUT HERITAGE

**Contribution format:** Oral  
**Contribution authors:** Alexandra Anders (Institute of Archaeological Sciences, Eötvös Loránd University) – Marta Arzarello (Ferrara University) – Antony Borel (Muséum national d’histoire naturelle, France | Eötvös Loránd University) – Hugo Gomes (Instituto Politecnico Tomar) – Aldi Lasso (Satya Wacana Christian University, Indonesia) – Carlos Merino (Universitat Rovira i Virgili) – David Pleurdeau (Muséum national d’histoire naturelle, France) – Marco Beaumont (Holy Moka Games) – François Semah (Muséum national d’histoire naturelle, France | Satya Wacana Christian University, Indonesia)

Many students from various disciplines say they are attracted to heritage issues, without fully understanding all of its dimensions. To address this gap, we launched a project, called ‘HERIT-AWARE: AWAREness and management of natural and cultural HERITage challenges: a skill acquired during university studies’ funded by Erasmus+. The project’s main coordinator is the National Museum of Natural History of Paris (France), in partnership with universities from Hungary, Italy, Portugal, and Spain and the Holy Moka studio. The primary objective is to raise awareness among university students about the many facets of natural and cultural heritage issues, emphasizing their importance for the future of our societies and the diverse professional opportunities they offer. The tool we have chosen is a playful, scientifically validated open-access training platform. We are developing an online video game for international / multidisciplinary students teams whose studies include at least one course related to heritage, regardless of their country of origin. The game allows them to explore diverse contexts, tackle real-life challenges, and develop integrated management plans, while also building skills useful for both their academic and professional careers. During the game, the players create a management plan of a region facing two heritage issues: natural and cultural. The game relies on several key mechanics that guide players in exploration, information gathering, and solving heritage challenges. Players are tasked with discovering the vast Geographical Areas, which consist of Zones and Interzones. We are organize summer schools for test game phases. Since 2024, we have developed two Zones, ‘Indonesia’ and ‘Hortobágy’ (Hungary). In this presentation, we will introduce these two zones, the challenges we faced, and the results of the first half of the project. The project is funded by Erasmus+ (2023-1-FR01-KA220-HED-000153092 KA220-HED).

1425. LANDSCAPE EDUCATION AND CULTURAL HERITAGE: AN ACTIVE AND PARTICIPATORY APPROACH TO LEARNING ON THE ALMONE STREAM

**Contribution format:** Oral  
**Contribution authors:** Elisa Giunta (Roma Tre University)

Integrating cultural heritage into education fosters environmental awareness and responsible citizenship. Landscape, as both a cultural and natural asset, offers a lens through which students explore territorial transformations and human impact over time. This project, developed in a public primary school near the Caffarella Valley in Rome, Italy, adopts an active and participatory approach to landscape education, aligning with the European Landscape Convention and sustainability policies. As part of the Cultural Heritage Active Innovation for Sustainable Society (CHANGES) Partnership, fostered by the Italian Ministry of Education and Research, this research contributes to protecting cultural heritage against climate change and environmental risks. The Almone stream, which flows through the Caffarella Valley, was revered as sacred by the Romans and serves as a case study of historical landscape transformations. Over the centuries, it played a crucial economic role, serving both agricultural purposes and as a source of hydraulic energy for mills, fulling vats, and paper factories. Its diachronic value as a natural and cultural landmark highlights the intertwined relationship between water, heritage, and human activity. Students engaged in soil permeability experiments, historical map tracing, and site explorations to examine hydrological changes and former water infrastructures. Their work culminated in a community map and a picture book, capturing their reflections on the evolving human-river relationship. By combining heritage studies with experiential learning, this initiative demonstrates how landscape education engages younger generations in cultural heritage preservation and sustainable management. At a time when heritage education faces funding cuts and school reforms, fostering active engagement with the landscape helps develop awareness, critical thinking, and a deeper connection to local history. This presentation will explore the methodologies employed, their impact on students’ perception of cultural heritage, and broader implications for integrating landscape education into school curricula.

1699. JOURNEY THROUGH THE WAYSTATION: A STUDENT’S EXPERIENCE IN CULTURAL HERITAGE EDUCATION

**Contribution format:** Oral  
**Contribution authors:** Katrina Kuxhausen-Derose (University of California Los Angeles)

In 2023, the University of California Los Angeles (UCLA) launched the Waystation Initiative in order to meet the



needs of community stakeholders and students seeking specialized training in provenance research, restitution, and other cultural heritage career skills. Unlike traditional museums, the Waystation is designed to temporarily steward archaeological and ethnological objects, focusing on their ethical return to the nation or community of origin. The Waystation’s certificate program addresses key challenges in cultural heritage education by blending community-focused learning with object-oriented research. Students are assigned 3-4 objects to investigate throughout the program. Coursework includes a seminar on the history of collecting, ethics, community engagement, and cultural heritage law. This course tasks them to perform provenance research and work with foreign consulates, ministries of culture, and descendant communities. The second course includes laboratory training, materials analysis, sampling, and testing. This makes students conversant on what methodologies can answer questions about dating, authenticity, origin, use, and treatment history. The final course requires students to complete capstone projects that convey their results through the creation of digital story maps (object biographies), database records, and profiles of art dealers and other stakeholders involved in an object’s provenance. As a student of this educational model, my perspective as a learner can highlight the challenges and opportunities in cultural heritage training. Through illustrative examples from my own object research, my presentation will critically reflect on my practical experiences with navigating the complexities of cultural heritage management and learner engagement. Challenges concerning intake protocols, determinations regarding the nation or community of origin, invasive testing and sampling, and the ethics of publication foster productive dialogues and collective solutions regarding best practices. As a trailblazer in cultural heritage education, the Waystation Initiative offers a fresh approach to reskilling and upskilling future professionals while promoting greater awareness of cultural heritage issues.

747. FROM RUINS TO PANELS: COMICS AS A TOOL FOR ARCHAEOLOGICAL STORYTELLING

**Contribution format:** Oral  
**Contribution authors:** Francesca Porta (University of Bologna) – Agostino Sotgia (University of Groningen)

In an era where storytelling shapes our understanding of both past and present, “narrating” has paradoxically become more complex. For archaeology, this challenge is even more pressing: how can we effectively communicate the discipline while remaining engaging, especially in a digital landscape where only viral content seems to capture attention? Among the many tools available, this paper explores an unconventional yet powerful medium: comics. Traditionally perceived as entertainment for younger audiences, comics possess a unique visual and narrative language that makes them a compelling tool, not only for education but also for cultural heritage dissemination and public archaeology. Their combination of imagery and text enhances accessibility, allowing for nuanced storytelling that can bridge the gap between experts and the broader public. Moreover, embracing a multilingual and multimodal approach can further amplify the reach and impact of archaeological narratives. By integrating comics into archaeological communication, we can foster a more inclusive and engaging way to share knowledge, ensuring that diverse audiences –regardless of age, language, or background – can connect with the past in meaningful ways.

1284. LEARNING TO COMMUNICATE HERITAGE THROUGH SOCIAL MEDIA: REFLECTIONS ON INFORMAL UPSKILLING

**Contribution format:** Oral  
**Contribution authors:** Giulia Albertazzi – Francesca Meneghetti (University of Cyprus) – Andrea Villani (University of the Balearic Islands)

Outreach is an often-overlooked yet essential aspect of Archaeology. Engaging non-specialists is key to preserving cultural heritage. However, archaeologists and cultural heritage professionals frequently struggle to communicate their work and its significance beyond academic environments. Our project, Once Upon a Time Lefkosia, funded by a Culture Moves Europe mobility grant, aims to move beyond traditional research practices and enhance our ability to convey archaeological insights to a broader audience, thereby fostering public interest in cultural heritage. Beginning with a 21-day field and archival research period in Nicosia (Cyprus), we adopted a learning-by-doing approach to explore the city’s evolving urban landscape and collective memory. Our methodology combined archival research with direct engagement in contemporary spaces, using photography and sketches to document historical and modern transformations of Nicosia’s cultural landscape. The Centre for Visual Art and Research (CVAR) provided access to historical photographs and documentary resources, offering a comparative lens through which to examine these changes. Over nine months, we developed a public outreach social media page, releasing weekly content collected during our three-week fieldwork period. Rather than positioning ourselves as experts, we sought to understand the challenges of effective communication with non-specialist audiences and to recognise our own limitations. Through social media and informal storytelling, we experimented with narratives that resonated beyond the academic realm. Funding limitations, time constraints, and the need for specific outreach skills further underscored areas where our formal archaeological training required upskilling. This paper reflects on the project’s ambitions, the learning process, and the gaps we identified in our

communicative abilities. By analysing our experience, we aim to contribute to a broader conversation on how archaeologists and cultural heritage professionals can improve engagement strategies and foster a more inclusive and direct dialogue around cultural heritage.

2451. KARLŮV HRÁDEK: EDUCATIONAL CENTRE IN SOUTH BOHEMIA

**Contribution format:** Poster  
**Contribution authors:** Martin Pták (Univerzity of South Bohemia)

Charles’s Castle at Purkarec is a castle ruin in southern Bohemia, which was formerly considered to be a building of Charles IV from the middle of the 14th century. In 2018, the management of the University of South Bohemia signed an agreement with the town of Hluboká nad Vltavou on cooperation in scientific research, conservation, restoration and presentation of this important cultural monument. AU FF JU is currently preparing a broad research and presentation project called “Karlův hrádek - Research and Educational Centre of Archaeology of the University of South Bohemia in České Budějovice”. In addition to other university activities (field teaching, research methodology of prospecting and documentation, application of specialized material and spatial analyses), archaeological research in the form of student internships takes place at the site. The material obtained is then processed in the Institute’s laboratories as part of the teaching process and students are assigned graduate thesis topics related to the site. In the 2019 season, a testing excavation was carried out on the site to determine the strength and quality of the medieval stratigraphy and to identify extinct structures. A major finding was that the area was intensively used as early as the 13th century. It therefore appears that the site had been built at least half a century earlier as the centre of the royal states in the area. In 2021, a survey was carried out in the palace, which confirmed that it had been heavily damaged by fire and had probably not been restored. In the 2024 season, a survey of the castle chapel was carried out, during which it was shown that the chapel had also been lost in the 13th century and the question remains as to whether it has been fully completed.

69 WAYFARING AND PLACE-MAKING IN THE MEDITERRANEAN SEA

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Round table  
**Session keywords:** Way-faring, Place-making, Seasonality, Climate change, Resilience, Mediterranean  
**Session organisers:** Linda Hulin (University of Oxford) – Helen Dawson (University of Tübingen)  
**Session speakers:** Linda Hulin – Max MacDonald – Karl Smith (University of Oxford) – Assaf Yasur-Landau – David Gal (University of Haifa) – Helen Dawson (University of Tübingen) – Angela Falezza (University of Oxford) – Athena Trakadas (University of Copenhagen) – Manuel Calvo Trias (University of Balearic Islands)

SESSION ABSTRACT

The shores of the Mediterranean witnessed repeated phases of exploration, settlement and abandonment from the Neolithic to the Classical period. While much of the discourse is focussed on the technology of maritime travel and the search for resources, this roundtable will explore the questions of how new routes were discovered, how they came to be established, and why they were abandoned. Points to consider are. (i) Are some shores and some islands so placed that they will inevitably be encountered. (ii) Do similar current regimes, wind patterns and resource availability lead to similar decision-making. (iii) What is the impact of seasonality and climate change on sea-faring and settlement resilience, particularly on small islands. (iv) Do technical advances in maritime technology encourage new route-making or impact upon older routes. (v) How are resources discovered and how is information about them transmitted to other populations. (vi) What other environmental and cultural factors contributed to the establishment of persistent routes and places in and around the Mediterranean?

70 PREHISTORIC OBJECTS IN TRANSITION: CULTURAL TRANSFORMATION IN MATERIAL RECORD

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** cultural transformation, prehistory, artifacts, cultural transmission, technology  
**Session organisers:** Jasna Vukovic (Faculty of Philosophy, Department of Archaeology, University of Belgrade) – Ina Miloglav (Faculty of Humanities and Social Sciences, Department of Archaeology, University of Zagreb)



SESSION ABSTRACT

Transitional periods usually are very intriguing issues in archaeology. In traditional research, archaeological “cultures” are seen as distinct entities, manifested primarily by differences in material culture, and are distinguished mainly by using various typologies. However, this approach blurs the transitional and contact periods, which are still poorly understood. This session aims at exploring how transitional periods in prehistory can be detected and explained in material record, i.e. among artifacts made of various materials (ceramics, bone and antler, metal, stone). Some of the topics this session is addressing at are:

- Technological changes and innovation, and their relations to social organization
- Methods of assessing variability in archaeological material in contrast to reduced variability generated by traditional approaches based on typology
- Hybridization of technological and stylistic traits
- Cultural transmission mechanisms and the processes of knowledge transfer
- “Mixed” assemblages – assemblages containing features that can be related to different cultures or traditions
- Changes in lifestyle reflected by different artifact types
- Coexistence of two or more cultures/traditions.

Speakers are invited to present some of the following issues:

- Case studies with a wide range of materials belonging to transitional prehistoric periods
- Archaeometric analyses aimed at revealing technological change.
- Theoretical considerations about transition and cultural transformation periods
- Methodology procedures and techniques for detecting cultural transition.

CONTRIBUTION ABSTRACTS

1220. VARIOUS ASPECTS OF TRANSITION, ASSESSED ON THE BASIS OF EXAMPLES OF CHANGING MEANINGS AND USE OF OCHRE

**Contribution format:** Oral

**Contribution authors:** Julia Kosciuk-Zalupka (Jagiellonian University)

Ochre has been identified in a variety of archaeological contexts worldwide, suggesting its utilisation across diverse cultural and temporal contexts. Its application encompasses a range of purposes, including its use in burial contexts as grave goods, in the decoration of artefacts (such as e.g. pottery) and in the processing of hides. Therefore, it could be argued that it is a significant cultural factor. It is noteworthy that the patterns of ochre use and its application are subject to change over time, thus facilitating the analysis of cultural behaviours. For the purposes of this presentation, the terrains of the Central and Eastern Balkans and part of the Carpathian Basin during the Mesolithic and Early Neolithic have been selected to illustrate these transitions. Under juxtaposition would be patterns observed at: nine Mesolithic sites, five sites presenting both Mesolithic and Neolithic layers, and 17 of the Starčevo-Körös-Criş cultural horizon. It is interesting to note that during the SCK horizon, the artifact form of the painted pebble with a hollow, which was previously observed to be quite popular at earlier sites, disappears. Furthermore, it appears that the significance of ochre as a grave good increases over time. Furthermore, it is possible to deliberate on the issues of general perception of ochre, its cultural enhanced value and attached meanings based on the observed changes.

2033. FROM SOCIETY TO ROCKS: CHANGES IN THE LITHIC TRADITIONS OF THE LATE NEOLITHIC TO CHALCOLITHIC IN NORTHEAST IBERIA

**Contribution format:** Oral

**Contribution authors:** Cynthia González-Olivares (SERP - Universitat de Barcelona | Institut of Archaeology - Universitat de Barcelona | Palarq Foundation)

The Middle Neolithic tradition in the northeast of the Iberian Peninsula has been the subject of numerous studies due to its key role in the network of trade routes for prestigious materials in Western Europe. During the 4th millennium BC, this territory was a center of intense interaction, where objects of high symbolic value were exchanged on a large scale. These exchanges connected the northeast of Iberia with regions such as the south of France, the northwestern Mediterranean, and the Italian peninsula (e.g. Chassey-Lagozza-Cortailod traditions), promoting fluid communication and a constant flow of goods and knowledge. However, with the arrival of the third millennium BC, this classical tradition underwent some significant changes. In this period, we observe a series of changes in the socio-economic and cultural structures of Neolithic communities. The economy, based on the exchange of prestige materials, facilitated the implementation of new ideologies of power, forms of social organization, and new objects of prestige. Likewise, funeral practices began to reflect external influences, incorporating new foreign elements into their rituals and grave goods. These changes not only affected the symbolic

and funerary sphere but also the organization of daily life and the configuration of domestic space. The present study focuses on the detailed analysis of lithic materials from some sixty sites located in the northeast of the Iberian Peninsula. Using a techno-typological approach, the main characteristics of these industries in transition will be examined, identifying the raw materials used and their distribution in both domestic and funerary contexts. This analysis will shed light on the processes of change that marked the transition from the Neolithic to the Chalcolithic, providing a comprehensive view of the transformations that defined the end of an era and the beginning of new social and economic dynamics.

589. MARKING LANDSCAPES, SHAPING IDENTITY: SHELL BEADS PRODUCTION AND SYMBOLISM ADAPTATION AT ARANGAS CAVE, NORTHERN SPAIN

**Contribution format:** Oral

**Contribution authors:** Claudia Finocchiaro (University of Cantabria | IIIPC)

The climatic changes marking the transition from the Pleistocene to the Holocene forced late hunter-fisher-gatherers to modify their dwelling patterns and subsistence strategies. Within these dynamics, marine resources, which had already been occasionally exploited during the Upper Palaeolithic, gained increasing importance, becoming a crucial source of sustenance for groups inhabiting the Atlantic coasts. The diversification of food resources was a response to environmental shifts that inevitably influenced other aspects of daily life, including mobility, the perception of the surrounding world, and self-identity—elements expressed by these communities through symbolism and rituals. The sea became a recurrent theme, reflected in artistic expression and funerary practices across the Atlantic coasts of Iberia and France. From this perspective, the study of shells through malacological analyses is fundamental. It not only provides insights into the climatic and environmental conditions in which they developed and their exploitation by these communities, but it may also suggest a symbolic dimension related to mobility and landscape marking. The transport of shells collected in marine environments to different sites, including inland locations, indicates the construction of networks connecting various places, contributing to the definition of spaces with ritual significance. The selection of specific species reflects aesthetic criteria—such as color, size, and workability—guiding their choice. Shell beads symbolized a connection to the sea, which, as a primary source of sustenance, was further celebrated in funerary contexts, where marine resources adorned the deceased. The site of Arangas, located in the Cantabrian region, with its multi-layered stratigraphy, has allowed for the examination of the evolution of shell beads use and production from the Late Upper Palaeolithic to the Bronze Age. This study provides valuable insights into how these communities responded to climatic and environmental changes by adapting their aesthetic preferences and ritual practices to the use of marine resources.

1397. CULTURAL TRANSFORMATION AND ADAPTATION IN WESTERN SERBIA DURING 5TH MILLENIUM

**Contribution format:** Oral

**Contribution authors:** Boban Tripkovic (Faculty of Philosophy, Department of Archaeology, University of Belgrade)

This paper examines the processes of cultural change, social transformation, and environmental adaptation during the 5th millennium in the central Balkans. That is the time of the disappearance of the Vinča cultural style and the emergence of the cultural traditions of Bubanj-Sălcuța, Tiszapolgár, Bodrogkeresztúr, Lengyel, and Lasinja cultures. Cultural changes have most often been explained by migration processes, the collapse of large settlements at the end of the Neolithic, the development of metallurgy, and changing economic practices. Other critical considerations point to internal cultural and technological development, the coexistence of Late Neolithic and Early Eneolithic cultures, the hybridization of cultural traits, and lifestyles that cannot be strictly labeled as Late Neolithic or Early Eneolithic. However, the central Balkans region has a diverse geography that requires contextualizing cultural tradition and transformation into different ecological niches. To what extent did the environment stimulate or constrain the process of cultural transformation and interaction? Based on the selected sites of western Serbia, the context of cultural change will be examined, with a special focus on the role of the wet environment in regional settlement dynamics and material culture development.

865. TRANSITION FROM THE LATE NEOLITHIC TO EARLY CHALCOLITHIC IN SOUTHEASTERN BULGARIA: THE CASE HADZHIDIMITROVO, YAMBOL REGION

**Contribution format:** Oral

**Contribution authors:** Viktoria Petrova (National Archaeological Institute and Museum, Bulgarian Academy of Science)

The studies of the transition from the Late Neolithic to the Early Chalcolithic in Southeastern Bulgaria are few. They are related to the study of pottery from an archaeological site or summarizing data for a specific region or microregion. A new contribution to these studies is the results of the study of the pit site Hadzhidimitrovo, located 13 km northwest of Yambol (Bulgaria). The characteristics of its material culture illustrate a gradual



development over at least 500–600 years (5350/5300–4750/4730 cal. BC), which covers the entire Late Neolithic period Karanovo IV, and the transition to the Early Chalcolithic. Along with the smooth development, the transition from the Late Neolithic to the Early Chalcolithic in Hadzhdimitrovo also presents some changes related to the location and shaping of the pits. The characteristics of the pottery outline three main accents, which determine its transitional character: simultaneous coexistence of Late Neolithic and Early Chalcolithic traits in the pottery assemblage; combination of Late Neolithic and Early Chalcolithic traits on one pottery vessel, as well as technological and stylistic changes in the ornamentation. The results of the study of the transitional stage to the Early Chalcolithic in Hadzhdimitrovo are also supported by a series of radiocarbon dates. They outline the time interval 4850/4800 – 4750/4730 cal BC, which refines the chronological position of this still poorly known period in the context of prehistoric phenomena in Southeastern Bulgaria and neighboring regions.

**820. INSIDE OUT: MONTE DA PONTE AND THE LARGER CENTRAL ALENTEJO REGION (SOUTHERN PORTUGAL) DURING THE 3RD MILLENNIUM BCE**

**Contribution format:** Oral  
**Contribution authors:** Inês Ribeiro (Universidade de Évora, CHAIA, IN2PAST) – António Diniz (Universidade de Évora, CHAIA, IN2PAST | Universidade de Évora, CIDHEUS) – Fábio Jaulino – Catarina Guinot (Universidade de Évora) – João Rocha (TerraWave Innovations, Lda) – Nuno Pereira (TerraWave Innovations, Lda | Instituto Politécnico de Beja) – Leonor Rocha (Universidade de Évora, CHAIA, IN2PAST) – Nelson Almeida (Universidade de Évora, CHAIA, IN2PAST | Universidade de Lisboa, UNIARQ)

The 3rd millennium BCE socio-cultural, ideological and environmental dynamics in Southwestern Iberian Peninsula have been a research hot topic for several decades. During the last years, with the identification of many new ditched enclosures, the debate as resurfaced by looking comparatively at ditched and walled enclosures. Different questions regarding chronology and associated material records and other dynamics of these societies have regained impetus with the analysis of the material record still remaining among the best ways of cross-referencing information between these different types of architectures. Monte da Ponte is one of the few known enclosures for this large area that combines positive and negative features. Hence, it has been considered paradigmatic to the analysis of SW Iberia Chalcolithic. The site is located in the Évora district, in the inland Alentejo region (Southern Portugal), and while it has been subjected to archaeological research during the 90's it had a large interregnum period with a new research program only starting recently. Some information from these studies, including geophysics and archaeological excavations has been obtained. In this paper, we present the current data of the site focusing on the material record recovered. We aim to discuss how this enclosure contributes to ongoing questions on changes and transitions during the 3rd millennium BCE in SW Iberia, especially considering the strong socio-cultural, economic and social transformations that these communities faced. Our objective is to reflect upon the reality that we have on the site of Monte da Ponte by comparing it with other assemblages that compose the broader picture of the Chalcolithic on the surrounding Central Alentejo territory.

**1039. CULTURAL TRANSFORMATION IN SOUTH AND WEST BOHEMIA DURING THE BRONZE AGE**

**Contribution format:** Oral  
**Contribution authors:** Ondrej Chvojka (University of South Bohemia, Faculty of Arts) – Markéta Augustýnová (University of West Bohemia, Faculty of Arts) – Daniel Hlášek (Institute of Archaeology of CAS Prague)

South and West Bohemia are the regions with a specific position in prehistoric times, given by their geographical location between the Danube regions in the south and central Bohemia in the north. The material culture and character of settlement in both these regions changed according to the nature and intensity of external influences from both directions, which is clearly evident in the Bronze Age. How are these cultural influences reflected in the archaeological record? How did the system of the cultural transmission and social organisation work and how it changed? Are we able to see cultural changes in the typology and also in the technological properties of the preserved artefacts? In our presentation, we will focus on selected artefacts from the periods of cultural transformations, specifically on different types of copper ingots from the transition of the Early and Middle Bronze Age, when the Early Bronze cultural groups gradually transformed into Tumuli cultures, or on casting cakes and ceramic vessels decorated with incised carving from the end of the Middle and beginning of the Late Bronze Age, when the Tumuli cultures changed to Urnfields. The orientation of both Czech regions towards the Danube area continues throughout the Late Bronze Age, but at the beginning of the Final Bronze Age there is a change: while Western Bohemia remains culturally strongly linked to today's South German area, the inhabitants of South Bohemia bring their material culture closer to the Central Bohemian Štítary culture. However, some manifestations in the material record continue to be preserved, such as specific trench-like features, which are known from flat settlements only in southern Germany, western and southern Bohemia.

**507. A NEW PIECE OF THE PUZZLE: TECHNOLOGICAL INNOVATION IN METALMAKING AT FINAL BRONZE AGE BOZSHAKOL, C. 1200-1100 BC (NORTH KAZAKHSTAN)**

**Contribution format:** Oral  
**Contribution authors:** Ilaria Calgaro – Miljana Radivojević (UCL Institute of Archaeology) – Yekaterina Dubyagina – Antonina Yermolayeva (A.Kh. Margulan Institute of Archaeology)

The Final Bronze Age of the Eurasian Steppe, corresponding to the end of the 2nd millennium BC, was marked by significant economic, social, and cultural transformations, including the intensification of husbandry, the expansion of settlements, and increasing craft specialisation. This period witnessed the emergence of the first proto-centres of the steppes and a surge in long-distance exchange networks of finished metal artefacts. While the movement of copper alloys across the Eurasian Steppe is well documented, the evolution of primary metal production at specific workshops, as well as their role in broader metal production and consumption networks, remain less explored. This study investigates metallurgical production at Bozshakol, a settlement and workshop site located in the Pavlodar Irtysh region (North Kazakhstan), directly associated with a major copper mining field. Bozshakol experienced long-term occupation primarily focused on exploiting the nearby ore deposit and functioned as a zone of transit and cultural contact of people, technologies, and raw materials. This is evidenced by the numerous ceramic materials unearthed, spanning the Final Bronze Age (c. 1200-1100 BC) and transitioning into the Early Iron Age. Ceramics appears linked to multiple cultural groups, including Sargary-Alekseevka, Begazy-Dandybai, Fedorovo, as well as imitations of Central Asian types from the Bactria-Margiana Archaeological Complex. In this context, questions arise regarding the transmission of metallurgical knowledge and the extent of shared technological traditions among the communities of the steppes, and beyond. We present new data on archaeometallurgical remains related to primary metal production from the workshops of Bozshakol, including ores, slags, and technical ceramics, to investigate innovation in metalmaking technology, its adaptation, and its transmission at this site. Our results contribute to a deeper understanding of the evolution of metal production and of the the interconnectedness between metal producers and consumer communities within the broader framework of the Bronze Age Eurasian Steppe.

**1428. EXPLORING DIVERSITY WITHIN TRADITION: INDIVIDUAL EXPRESSION AND INNOVATION IN NEOLITHIC GREECE**

**Contribution format:** Oral  
**Contribution authors:** Lily Bonga (Institute for Aegean Prehistory, Study Center for East Crete)

One of the striking aspects of the Greek Neolithic is the highly identifiable ceramic assemblage, both decorated and undecorated pottery. Ceramic change, the traditional pillar of relative chronologies in prehistory, is based on the premise of stylistic and technological change, which have traditionally been assumed to define cultural periods. This viewpoint does not, however, consider the role of individuals within their community and their choice to reinforce, experiment, or break with the orthodox cannon. Furthermore, Greek Neolithic pottery technology did not follow a linear path from simple to complex, as shown by the abandonment of a more technologically demanding painted pottery to that of simpler undecorated wares over time. Such a trajectory suggests that cultural and social pressures affected the choices potters employed in selecting materials and firing methods, rather than technological ignorance. Experimentation, innovation, and change are attested in the diversity of within ceramic assemblages, even within an identifiable tradition. The Early Neolithic site of Mavropigi-Fillotsairi in Western Macedonia, Greece provides a case study for assessing ceramic variability in relation to cultural transmission mechanisms and the processes of the transfer of knowledge at a generational level. The co-existence of several traditions and a hybridization of technological and stylistic traits is documented. This “mixed” assemblage is a good starting place for a discussion on how to approach cultural material from at site geographic crossroads during a pivotal transitional period.

**1263. THE NETWORK OF TECHNOLOGICAL KNOWLEDGE TRANSMISSION IN THE EARLY AND MIDDLE COPPER AGE CARPATHIAN BASIN**

**Contribution format:** Oral  
**Contribution authors:** Eszter Solnay (MTA-ELTE Lendület “Momentum” Innovation Research Group, Eötvös Loránd University | Doctoral School of Archaeology, Paris 1 Panthéon-Sorbonne University | UMR 8215 Trajectoires) – Zoltán Kovács (MTA-ELTE Lendület “Momentum” Innovation Research Group, Eötvös Loránd University | Department of Biological Physics, Eötvös Loránd University) – Péter Hornok (Vas County Government Office Department of Construction and Heritage Protection) – Péter Kiss (Savaria Museum) – Nikolett Kovács (Herman Ottó Museum) – Dávid Kraus – Zsuzsanna M. Virág (Budapest History Museum) – Attila Németh (Herman Ottó Museum) – Gábor Szilas (Budapest



The traditional cultural-historical approach outlines archaeological cultures and regional units based on the typological classification of the material culture. However, this methodology has always faced the difficulty of classifying certain, especially pottery assemblages within a particular archaeological culture. This was also the case for the Early and Middle Copper Age in the Carpathian Basin (4500–3650 cal BC), where several cultures were defined based on pottery typology, although many assemblages could not be unequivocally assigned to one culture or another. This approach focused on the cultural differences and diverse supraregional connections between the eastern and western parts of the Carpathian Basin (i.e. Great Hungarian Plain and Transdanubia) and highlighted the cultural difference between the Early and Middle Copper Age without the explicit consideration of the social relations and personal interactions beyond these differences and changes. Our analysis focuses on the technology of pottery making that explores the strong relationship between several vessel fabrication steps and the social link(s) of the potters. Pottery forming, and to some extent, the surface treatment reflects the continuous transmission of technical traditions between individuals in strong social relations. These steps of the pottery making were analysed with a macroscopic approach on seventee. Early and Middle Copper Age sites in three adjacent regions of the Carpathian Basin: the Great Hungarian Plain, the Transdanubia, and the Budapest region. The identified techniques are then studied using social network analysis, which enables us to reconstruct the spatial and temporal distribution and change of technological knowledge. Therefore, the spread of pottery technical traditions over space and time reveals a previously fully unknown network of social relations based on close personal contact of potters from different communities in the Carpathian Basin.

1266. THE TRANSITION BETWEEN THE 3RD AND THE 2ND MILLENNIUM BC: CASE STUDY OF GALABOVO POTTERY

**Contribution format:** Oral  
**Contribution authors:** Denitsa Ilieva (Sofia University “St. Kliment Ohridski”)

Several issues engage the minds of scholars studying the transition between the end of the 3rd and the beginning of the 2nd millennium B.C. They include chronological questions, such as where to place the boundary between the end of the EBA and the beginning of the MBA; shifts in settlement patterns; the origin of wheel-thrown vessels from this period – whether they were imported or locally produced; and the trade routes between Anatolia and the Balkans used for economic and cultural interactions. Tell Galabovo is central to these issues in Eastern Upper Thrace. So far, it is the only tell in Bulgaria that provides evidence highlighting the transition between both prehistoric periods. During the transition between the EBA and MBA, continuity in pottery production is observed, reflected in the gradual development of both vessel shapes and decoration, but there are also some specific changes within the ceramic repertoire. This study examines both the general relationships between decoration such as techniques, motifs, and vessel composition during the two reviewed periods and the specific characteristics distinctive to each, including techniques, modified elements, and changes in shape, method, and location of certain motifs. Tracking distinct vessel types and their decorations in relation to the stratigraphic layers of the sites where they were found provides grounds for distinguishing several stages of ceramic production in Southeastern Bulgaria during the second half of the 3rd and the beginning of the 2nd millennium B.C. The presence of ornamental compositions with modified elements, along with innovations in shaping certain vessel parts could be considered reliable and recognizable chronological indicators characteristic of the transition between EBA III and MBA.

99. CHANGES IN POTTERY PRODUCTION AS INDICATORS OF SOCIOECONOMIC DEVELOPMENT: A CASE STUDY FROM EASTERN BOHEMIA

**Contribution format:** Oral  
**Contribution authors:** Jan Volf (Department of Archaeology, Faculty of Arts, Charles University | Institute of Archaeology of the Czech Academy of Sciences, Prague) – Karel Slavíček – Kristýna Trnová (Department of Geological Sciences, Faculty of Science, Masaryk University)

During the first century BC, settlement in Central Europe underwent a significant transformation. This change is attributed to a crisis and the collapse of the society of the late La Tène period (LT D1) and the arrival of a new population at the onset of the Roman period (LT D2). In Bohemia, the settlement development of the La Tène period peaked in the phase LT D1a (130/100–80/70 BC). However, during the phase LT D1b (80/70–50/40 BC), a decline began, culminating in the phase LT D2 (50/40–10/5 BC) with the dissolution of the La Tène settlement network, the disruption of craft production, and substantial changes in material culture, including pottery. Nonetheless, research on the discontinuity of pottery production has predominantly focused on stylistic analysis of shapes and decorations, and the disappearance of specific ceramic types. To obtain additional insights into the transitional period, this case study examines pottery from the late La Tène and early Roman periods

from Slepotice in Eastern Bohemia through macroscopic observation, X-ray fluorescence analysis, and thin-section analysis to explore materials used and manufacturing processes. The results indicate significant changes in sources of materials used at the beginning of the Roman period, accompanied by a reduction in their diversity. Simultaneously, certain pottery-making techniques were abandoned, but the overall manufacturing process persisted. The transformation of pottery production and distribution could have been driven by various factors, including the disintegration of the La Tène socioeconomic network and the loss of specialised potters. However, it likely did not involve a complete end of settlement and total population replacement. This suggests that changes observed during the first century BC were primarily caused by internal factors rather than external influences.

1958. DISSECTING CENTRAL AMERICA’S LATE FORMATIVE CERAMIC SPHERE. NORTHEASTERN HONDURAS’ CONNECTIONS TO SOUTHERN MESOAMERICA AND THE ISTHMO-COLOMBIAN AREA

**Contribution format:** Oral  
**Contribution authors:** Adrien Martinet (German Archaeological Institute, KAAK | University of Leiden) – Jeannine Langmann (German Archaeological Institute, KAAK)

Central America has long been considered as the borderland between Mesoamerica and the Isthmo-Colombian Area: a patchwork of loosely connected communities with isolated centers displaying fledgling markers of social complexity. However, recent investigation results from Late Formative sites (400 BCE to 300 CE) challenge this view: the distribution of Usulután-style ceramics – characterized by hard-fired, fine-pasted, service-oriented vessels with linear negative-painted decorations – shows that the Central American communities of the Late Formative period were well connected. Communities far away from larger settlements had access to these elite-associated types of ceramics. Compositional analyses revealed that these prestige goods – previously thought to be imports – were produced locally in multiple regions of Central America, implying strong interregional ties for the transmission of specialized technological knowledge. Honduras’ northeastern coast sits at a nexus where Mesoamerica, the Isthmo-Colombian Area, and the Caribbean converge. This coalescence of influences created a distinct material record for the Late Formative period, which significantly differs from later assemblages of the Classic period (300 CE to 1000 CE). Despite recent advances in Central American archaeology, the internal organization of this supra-regional interaction network remains unclear. This paper aims to present the preliminary results of our research at the site of Betulia, in northeastern Honduras, where the region’s first stratified Late Formative context is currently being excavated. Through an analysis of the site’s ceramic assemblage, we highlight socio-cultural ties to both nearby and distant settlements. Rather than merely serving as a corridor for people and goods to move between the larger neighboring cultural areas, northern Honduras actively engaged with them and shaped these interactions.

2069. CULTURAL HYBRIDIZATION IN THE LATE BRONZE AGE: THE EVOLUTION OF THE HAJDÚBAGOS–CEHĂLUȚ POTTERY STYLE

**Contribution format:** Oral  
**Contribution authors:** Orsolya Gyurka (Móra Ferenc Museum, Szeged | Babeş-Bolyai University, Cluj-Napoca)

This presentation explores a crucial phase of cultural transformation in the Late Bronze Age Carpathian Basin, focusing on the hybridization of pottery traditions. The Hajdúbagosa–Cehăluț pottery style stands at the center of this transition, blending elements of the Otomani–Fűzesabony Cultural Complex with influences from the Tumulus culture. This stylistic fusion is evident in north-eastern Hungarian regions, as well as north-western Romania, marking a key period from approximately 1600 to 1200/1150 BC. Rather than a simple technological transfer, the adoption of Tumulus elements by the Otomani–Fűzesabony communities during the Koszider period reflects a complex cultural process. These communities reinterpreted and integrated new features, leading to a hybridized pottery tradition that retained Middle Bronze Age forms while incorporating new motifs such as amphora shapes and spiral designs. This phenomenon also exemplifies glocalization, wherein external influences were absorbed and reshaped to fit local traditions. The Upper Tisza region played a pivotal role in these cultural dynamics, being well integrated into the trade networks of the Tumulus culture and bridging connections between Western Europe and the eastern regions of the Carpathian Basin. The widespread distribution of common ceramic elements across the Great Hungarian Plain highlights the considerable extent of interaction among various cultural groups. This study underscores the importance of pottery as a medium for understanding cultural transition, illustrating how tradition and innovation intertwined to shape evolving identities and artistic expressions in the Late Bronze Age.

1103. TRANSITIONING TO A COLLECTIVE ETHOS: THE CRETAN SARCOPHAGUS AS ILLUSTRATIVE OF A SOCIO-POLITICAL SHIFT FROM A HETERARCHY TO HIERARCHY

**Contribution format:** Oral  
**Contribution authors:** Laura Nerling (Columbia College)



This paper explores two different transitional moments on Crete during the Bronze Age, as illustrated by the continuation, discontinuation, or reintroduction of the Cretan larnax (sarcophagus). Transitions of socio-political complexity are often poorly understood in prehistoric cultures due to a lack of written evidence; however, material culture can impart subtle cues about lifestyle shifts that reflect broader ideological transitions. In particular, funerary objects and assemblages can provide a window into ideological transformations due to their long-duration and continued use regardless of shifting environments. This paper asserts that the Cretan larnax reflects such a social-political transition from a microregional and heterarchically-based organizational structure in Pre- and Protopalatial Crete (Early to Middle Bronze Age) to a hierarchical, homogenous culture that ideologically demonstrates an island-wide identity consistent with a cohesive macroregional culture during the Post-Palatial period (Late Bronze Age). This argument contributes to the larger debate concerning the idea of a Cretan or Minoan “Collective Ethos.” While there is little evidence to support a collective ethos during the Early Bronze Age on Crete, the reintroduction of the larnax in LM III suggests an intentional re-adoption of past funerary practices. This adoption of a material object associated with both the death and the afterlife (from the EM III and on) is then co-opted in the LM III period as a form of active manipulation. Thus, the Early Bronze Age funerary object becomes a tool used to solidify the transition from small regional centers into the collective ethos of a hierarchical Cretan society.

**940. IRON AGE RITUAL VESSELS AS TRANSFORMATIVE MASKS: A NEW INTERPRETATION OF MENORCAN RITUAL CUPS DURING THE POST-TALAYOTIC PERIOD (550-123 B.C.E.)**

**Contribution format:** Oral  
**Contribution authors:** Evelyn Patterson – Alexander Smith (SUNY Brockport) – Amalia Pérez-Juez (Boston University)

The Balearic Island of Menorca was home to a distinctive prehistoric culture that in the Late Iron Age, or Post-Talayotic period (c. 550-123 BCE), saw a peak of prehistoric populations that built massive megalithic homes, modified ceramic traditions, and innovated new ritual practices, all while interacting with the increasingly powerful Carthaginian, Roman, and Greek worlds. As part of the ceramic assemblages from this era, archaeologists have long studied the high-bottomed cup (vaso de fondo alto) and the truncated cup (vaso troncoconico), which are unique to Post-Talayotic Menorca, and serve as ritual consumptive vessels. Their overall shape has been likened to a taumorphic design, possibly referencing a bull deity that appears elsewhere in ritual contexts on the island from both the Post-Talayotic and previous periods (Ferrer 2021). Several hundred examples of these cups have been found at sites around the island, including one truncated cup at the site of Torre d'en Galmés that was excavated by the Menorca Archaeological Project (MAP) in 2021. After a close analysis of MAP’s truncated vessel in 2023, it became clear that when used to consume liquid, the cups’ unique shape may lend itself to a type of animal mask. As a result, this paper proposes a new interpretation of Menorca’s ritual vessels, where the cups function as both drinking vessels and as transformative masking devices in ritual spaces. To understand this new interpretation, this paper considers the likelihood of cultural transmission from previous prehistoric groups on the island through the continuous use of ritual contexts and traditional ceramic production techniques. Nevertheless, we also consider the potential of hybridization of the vessels’ form and function based on external influences of Phoenician-Punic masking rituals and elements of Greek drinking culture.

**364. THE 5TH MILLENNIUM BC IN THESSALY. RETHINKING THE TRANSITION FROM THE NEOLITHIC TO THE CHALCOLITHIC PERIOD**

**Contribution format:** Poster  
**Contribution authors:** Lea Hüntemann (Freie Universität Berlin)

This poster aims to present the current findings from my research project on the Late Neolithic and Early Chalcolithic Period in Thessaly, Greece, which is concerned with the examination of material culture and the clarification of both periods and the transitional period in between. There has been extensive research, especially on the pottery from this region, leading to many insights over the decades which were discussed and adjusted by many scholars before me. This has led to the clarification of countless research questions but also to a situation in which gaps caused by the shifting of pottery sequences have not been filled as of yet. Similarly, many excavations remain unpublished and are not available for further research. Through the systematic examination of material from Late Neolithic/Chalcolithic sites in Thessaly (such as Agia Sophia magoula), this project is focused on redefining and specifying the way the pottery has changed (and in some ways remained the same) in between these two periods. The thorough analysis of pottery and the connection of relative chronological and absolute chronological findings allows for a clearer definition of what is currently called the “Rachmani Period” as well as the transition from Late Neolithic to Chalcolithic.

**430. PREHISTORIC BRONZE OBJECTS IN TRANSITION: CULTURAL TRANSFORMATION IN MATERIAL RECORD AT IRON AGE CENTRE PODZEMELJ, SOUTHEAST SLOVENIA**

**Contribution format:** Poster  
**Contribution authors:** Lucija Grahek (Institute of Archaeology ZRC SAZU, Ljubljana) – Nataša Nemeček (National Museum of Slovenia) – Marijan Nečemer – Katarina Vogel Mikuš (Jožef Stefan Institute (IJS), Ljubljana)

The study of transitional periods in prehistory is crucial for understanding cultural dynamics. Traditional archaeological research often delineates cultures based on typological distinctions in material culture, which can obscure the nuances of contact and transition periods. We are presenting an investigation of copper-based artefacts from the Iron Age site of Podzemelj in Southeastern Slovenia, focusing on their chemical composition and corrosion mechanisms. The study examines artefacts from two distinct cultural circles: the Dolenjska Hallstatt and the Late Iron Age Vinica community. Through advanced archaeometric techniques, including X-ray fluorescence (XRF), micro-XRF (μXRF), and X-ray diffraction (XRD), the research explores technological variations, material transformations, and cultural interactions reflected in the metal objects. Findings indicate that while both cultural groups utilized similar alloy compositions (bronzes and leaded bronzes), differences in corrosion patterns suggest distinct environmental influences. One key observation is the varying degrees of copper depletion and tin enrichment (i.e., decuprification) in artefacts from different cultural contexts, implying the role of burial environments in shaping the preservation state of objects and emphasizing the need for context-specific conservation strategies. The absence of chlorides in corrosion layers is particularly significant, as it reduces the risk of bronze disease, allowing for more flexible preservation approaches. By integrating material analyses with archaeological context, this research contributes to a broader understanding of cultural transitions, artifact hybridization, and technological exchange in prehistoric Europe. The findings underscore the necessity of interdisciplinary methodologies in detecting and interpreting shifts in material culture, shedding light on the complexity of prehistoric interactions and transformations.

**1195. WOOD OR SOIL? SOLUTION OF THE GOUGE USE: EXPERIMENTAL AND USE WEAR APPROACH**

**Contribution format:** Poster  
**Contribution authors:** Katarína Kapustka (Institute of Archaeology of the CAS Prague) – Malgorzata Winiarska Kabacińska (Archaeological Museum in Poznań)

The use of gouges in Early Khartoum has been frequently discussed, particularly in relation to this specific cultural context. However, much of the understanding surrounding their function has remained speculative, with limited solid evidence to support these claims. This article addresses this gap by comparing experimentally produced tools with archaeological specimens from the region. The experimental tools were crafted by a skilled knapper using the same raw material—red rhyolite—that prehistoric communities in the Sabaloka region are known to have used. These experimental pieces were utilized for practical tasks, specifically for soil and wood-working activities. The wear patterns and functional traces resulting from these uses were carefully documented and compared with those found on archaeological artifacts from the Fox Hill and Kadero sites. By conducting this comparative analysis, the study aims to provide a clearer understanding of the specific activities for which these gouges were employed during the Neolithic period in central Sudan. This research not only contributes to a more refined interpretation of tool function in this ancient context but also enhances our broader understanding of Neolithic technological practices in the region.

**71 BEYOND CONQUEST: ENVIRONMENTAL AND CULTURAL IMPACTS OF ROMAN EXPANSIONISM**

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Regular session  
**Session keywords:** Roman conquest, Bioarchaeology, Environmental Archaeology, Roman Archaeology, Landscape Archaeology  
**Session organisers:** Antonio Merola (University of Bari) – Valentina Colagrossi (University of Bari / ISPC-CNR) – Francesco Solinas (University of Lecce) – Roberto Ragno (University of Bari) – Frijda Schmidt (University of Cambridge)  
**Session discussant:** Nicola Terrenato (University of Michigan)



SESSION ABSTRACT

This session aims to establish a methodological framework that facilitates collaboration between scholars engaged in studying environmental change and those focusing on the processes of Roman Empire in the Mediterranean region. The study of conquest of Rome has long relied on topographical and historiographical methods and material culture to trace the profound changes that occurred over time in the territories affected by the Roman conquest. On the other hand, a growing number of researchers have increasingly focused on human-environment interactions, and the integration of paleoenvironmental approaches to read historical-archaeological processes has opened new frameworks for investigating how Roman impact transformed local ecosystems. This session will broaden traditional approaches by incorporating environmental archaeological perspectives. By combining paleoenvironmental analysis with well-established methodologies, we aim to prompt new lines of questioning that will lead to enhanced and innovative approaches, thereby advancing our understanding of the Roman world. The objective is to identify, through case studies, the consequences of Roman conquest on evolving local environments. This will involve exploring whether the exploitation of the environment was more intense under the Roman settlement and investigating the possible links between the Roman conquest and the ecological footprint on landscapes. Roman explotation significantly impacted water management practices, mining, agriculture, productive assets and, more generally, the wider economic exploitation of natural resources. We invite scholars to consider these changes in a broader temporal perspective, from the pre-Roman period to late-Roman o. early middle ages, following the environmental dynamics associated with the Roman conquest. We welcome contributions on archaeobotanical, zooarchaeological and other bioarchaeological case studies from Romanised regions, as well as computational approaches and/or studies on the productive, agricultural and mining sectors, all within the framework of the environmental dynamics associated with the Roman conquest.

CONTRIBUTION ABSTRACTS

557. INTRODUCTION

**Contribution format:** Oral  
**Contribution authors:** Antonio Merola (University of Bari)

This session aims to create a methodological space that brings together scientific disciplines analyzing environmental changes with scholars of Romanization around the Mediterranean. The objective is to identify, through case studies, the biochemical and faunal traces of ecosystems during the Roman conquest. The session seeks to examine whether Romanization led not only to intensive environmental exploitation but also to assess possible correlations between conquest and ecological footprints on landscapes. For the first time, this session brings together researchers engaged in the complex issue of Romanization with the findings of environmental sciences, which have significantly advanced research in other fields of archaeology. It is time to analyze environmental changes during the Roman conquest, considering the effects of water, mining, agricultural, faunal, and floral exploitation introduced by Roman technologies and production methods. The central theme is the environmental impact of Roman conquest, particularly in relation to the exploitation of natural resources and the economic transformations of conquered areas. This analysis goes beyond resource extraction, exploring how these practices reshaped production systems essential for integrating newly Romanized regions into the pan-Mediterranean context. The session welcomes contributions on archaeobotany, zooarchaeology, and bioarchaeology in Romanization contexts, as well as studies on productive, agricultural, and mining sectors in relation to the environmental dynamics of the Roman conquest.

1688. ASSESSING THE IMPACT OF ROMANIZATION ON THE MANAGEMENT OF ANIMAL RESOURCES IN THE LUSITANIA (SW IBERIAN PENINSULA)

**Contribution format:** Oral  
**Contribution authors:** Patrícia Aleixo – Ana Beatriz Santos – Cleia Detry (School of Arts and Humanities. University of Lisbon | UNIARQ - Centre for Archaeology)

The expansion of the Roman Empire resulted in significant changes in the conquered territories, not only from an economic, social and cultural perspective but also environmental changes, namely in animal resources management and exploitation. It has been assumed the Phoenicians initiated a deep transformation in managing animal resources, namely through the circulation of animals across the Mediterranean. Indeed, the introduction of chicken and donkey in the Iberian Peninsula seems to be related to the presence of that seafaring people, as well as new varieties of cattle in different parts of the Mediterranean. Notwithstanding, during the Roman period, these movements of circulation and exchange were intensified and the introduction of several new species for consumption in feasts, hunting activities, and pest control, among others, had a huge impact on local ecosystems, while the establishment of new management methodologies has also been attested. The artificial selection of animals is also clearly dominated in this period with the appearance of small morphotypes in dogs

and eventually in equids. In Lusitania (corresponding approximately to the current Portuguese territory south of the Douro and most of the Spanish Extremadura) this information has been observed through the analysis of zooarchaeological data. Cattle improvement was also noted in Lusitania, especially in cities of roman foundation and in some villae. This paper aims to synthesize all the zooarchaeological data from archaeological sites of Lusitania and provide a first analysis on the changes and continuities caused by the Romans in this territory.

1942. HUMAN-ENVIRONMENT INTERACTION IN THE CENTURIATED LANDSCAPE OF THE PONTINE PLAIN: PLANT REMAINS FROM CANALS AND DITCHES

**Contribution format:** Oral  
**Contribution authors:** Mans Schepers – Tymon De Haas (University of Groningen) – Tirsia Komrij (University of Groningen | RAAP Archeologisch Adviesbureau) – Michael Bakker (University of Groningen)

The Pontine Plain, located approximately 70 km south of Rome, is a former marshland area impacted by humans from prehistory onwards, but transformed profoundly in the Republican period as part of Roman expansion. The Via Appia runs straight through the landscape and forms the most prominent feature of these transformations. Visually less imposing are the many traces of intensive agricultural exploitation in the surrounding polder landscape. While the present parceling of the landscape is mainly the result of large-scale reclamation activities in the early 20th century, remnants of a much older Roman centuriation are present in the soil. Intensive field surveys, analyses of historical aerial photography, and geophysical prospection from 2011 onwards revealed a large number of archaeological sites as well as the presence of an extensive network of canals and ditches. These could be assigned to roman Republican times through both their association with archaeological material on the present surface and radiocarbon dates on plant remains from their infills. Over the past five years, we have sampled canals and ditches in various parts of the plain for the analysis of pollen and plant macro remains. These allowed us to elevate our understanding of Roman land use in, and environmental impact on the area, but we also ran into a number of methodological and taphonomical issues. We will share the findings so far, discuss further plans, and reflect upon the potential of our project for work carried out in other regions.

696. MORPHOLOGY, DEPOSITION AND ROLES OF DOGS IN LATER PREHISTORIC, ROMAN AND EARLY MEDIEVAL SOUTHEAST EUROPE

**Contribution format:** Oral  
**Contribution authors:** Sarah Everett (BioArCh, Department of Archaeology, University of York)

Among the environmental and cultural impacts of the Roman occupation were widespread changes in animal morphology, with the emergence of larger livestock and particularly small dogs evident in many provinces. Dogs played a wide variety of roles in past societies — utilised for hunting, herding and guarding, for pest control, and kept as pets — and were additionally associated with chthonic deities, healing, and other aspects of ritual activity. While distinct dog breeds only emerged within the last few centuries, human-induced changes in dog size and shape as a result of selection for particular traits have a much longer history. Analysis of spatiotemporal variation in dog morphology provides important insights into the emergence of different morphotypes or varieties of dogs, the roles of dogs within human societies, and the impact of key political changes such as the Roman expansion on animals living within human communities. Via the meta-analysis of published metrical data from archaeological sites across southeast Europe, with a temporal scope from later prehistory to the early medieval period, this paper aims to evaluate morphological change under Rome within the context of longer-term patterns, in order to understand the relative impact of the Roman conquest on the range and relative abundance of different dog morphotypes. The paper explores patterns in morphology across site types, aiming to ascertain the extent of variation between the types of dogs deposited within domestic contexts, on the one hand, and the types of dogs selected for deposition within religious or ritual contexts, on the other. The study encompasses three regions — (a) the Balkan provinces, under long-term Roman occupation, (b) Dacia, a Roman province from 106-271/275 CE, and (c) regions to the north that remained beyond the Empire.

695. VISCERAL COMMODITIES: FISH SAUCE PRODUCTION AND CONSUMPTION IN ROMAN BRITAIN

**Contribution format:** Oral  
**Contribution authors:** Avner Goldstein (Boston College)

Fish sauce, commonly referred to by one of its Latin names garum, reaches many of our classical literary texts, including recipe compilations and cookbooks, as well as treatises on agriculture, and was one of the most essential components of Roman cuisines. Before the Roman period, Iron Age Britain had no strong maritime culture, and fish were rarely exploited or eaten. By the end of the Roman period, however, Britain had developed a robust infrastructure for the exploitation, processing, trade, and consumption of fish and other marine products, in part for the large-scale importation and later production of fish sauce. This paper draws on both zooarchaeological



and artefactual analyses to highlight the transformation of Britain’s marine environments across five centuries through the exploitation of local fish for the fish sauce industry, which reflected a provincial interpretation of a classic Roman staple. Through this process, we document the destructive impact this industry had on specific fish species and the habitats they lived in, as well as how these environments responded to the collapse of Roman systems in the late fourth and fifth centuries. Finally, the industry illustrates the complex interplay between human societies and the marine world in antiquity, showing how widespread cultural practices and social hierarchies shaped and were shaped by environmental interactions.

**1951. THE MACEDONIAN WARS IN PELAGONIA PALEOENVIRONMENTAL RESEARCH CONTRIBUTIONS TO THE UNDERSTANDING OF THE EARLY ROMAN CONQUEST OF THE MACEDONIAN KINGDOM**

**Contribution format:** Oral  
**Contribution authors:** Nick Angeloff (Cal Poly Humboldt | Chronicle Heritage) – Ljuben Tevdovsky (Goce Delchev University Shtip) – Byron Smith (76907) – Rebekka Kniernan (Swca) – Jessica Bedell (Cal Poly Humboldt)

The archaeological site of Crnobuki in the Pelagonian Valley was traditionally associated with the historically famous battles of the Macedonian phalanxes with Rome. Yet, our archaeological research and known necropolis in the vicinity of the site suggested that it was not just a military outpost of the last Macedonian kings, but an important urban center of the archaic, classical and Hellenistic periods. The abundance of ancient written sources and archaeological material related to this region contributed towards ignoring the important dynamics of development of this pre-Roman and Roman settlement in relation to the exploitation of its landscape and surrounding natural resources. This paper presents important new findings, hypotheses and interpretations of the symptoms of change related to the Roman conquest, which are results of the two seasons of field surveys, excavations and laboratory analyses of the international American-Macedonian team, focused on computational and paleoenvironmental approaches. The LIDAR data produced in the last two years, led towards a more precise modeling of topographic and geographical features of the site, which combined with archaeobotanical analyses, alphanumerical and geo-referenced cartographical reports and flood analysis with a focus on the flood zone between 570–600 m above sea level, revealed the complexity of the dynamics of the settlement in the pre-Roman and Roman times. Analyzing the environmental changes caused by the modern landscape cultivation (huge drainage system), led towards an entirely new orientation of the site towards the mountain slopes to the north, instead of the ancient flood zone to the south-east. More importantly, the significant reduction of agricultural and export activities of this urban center in Roman times, can no longer be associated exclusively with the early Roman suppressive policies, but also with new patterns of developing settlements within the critical zone predisposed to floods and Roman mining of minerals.

**1874. WINE PRODUCTION IN TAGUS VALLEY (CENTRAL LUSITANIA) DURING THE ROMAN PERIOD, CHANGING LANDSCAPES. VILLA CARDÍLIO AS A CASE STUDY**

**Contribution format:** Poster  
**Contribution authors:** Victor Filipe (UNIARQ- Centre for Archaeology, School of Arts and Humanities, University of Lisbon | Torres Novas City Council) – Catarina Viegas – Carlos Fabião (UNIARQ- Centre for Archaeology, School of Arts and Humanities, University of Lisbon)

It is an established fact that the Roman presence in Westernmost Hispania, from Late Republic to the end of the Empire, caused profound transformations compared to the previous period, both culturally, socially, politically, and economically, as well as in terms of urban and rural landscapes. In this context, one of the most impactful actions on the rural landscape was the exploitation of natural resources, particularly mineral resources, which was one of Rome’s main interests in Hispania, but also the agricultural potential of the soils, with natural emphasis on the most fertile ones located in the valleys of the main rivers. Indeed, thanks to a differentiated technological apparatus and an orientation towards large-scale production, Roman occupation enhanced agricultural production, reaching levels far superior to those of the previous period. With this study, we aim to highlight the importance of viticultural exploitation in the economy of the Tagus Valley during the Roman period and its marked difference from previous eras, while also assessing the changes that this activity may have caused in the landscape from the end of the Iron Age to Late Antiquity. To achieve this, we will use archaeological evidence, particularly structures and materials associated with the production, transport and consumption of wine, comparing these data with recent archaeobotanical studies conducted in this region. The Roman villa of Cardílio (Torres Novas, Portugal), located near the banks of the Almonda River, a navigable tributary of the Tagus River, and approximately 100 km from its mouth, represents a highly interesting case study for this topic. This is due to the recent identification of the production of wine amphorae intended to transport the wine produced on the villa’s fundus.

**72 FACING COMPLEXITY OF THE URBAN STRATIGRAPHY**

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Discussion session  
**Session keywords:** Urban archaeology, organization of space, site biographies, geoarchaeology, archaeobiology, urban Dark Earth  
**Session organisers:** Christine Pümpin (University of Basel) – Mónica Alonso-Eguiluz (Vrije Universiteit Brussel) – David Brönnimann (University of Basel) – Meihui Li – Yannick Devos (Vrije Universiteit Brussel)

**SESSION ABSTRACT**

Urban archaeology is at the core of some of the big issues that archaeology seeks to address, such as the emergence of complex societies, the co-existence of communities, the economic activities, human impact on the environment and societal collapse. To address these questions urban archaeologists need to face complexity. Part of this complexity is inevitably linked to variability in scope and size of the archaeological interventions, ranging from small-scale follow-up during construction works to large-scale excavations. The key challenge in urban archaeology, however, is the complexity of the urban stratigraphy often involving urban deposits reaching several meters in thickness, resulting from many phases of human occupation within a restricted space. This complexity is particularly challenging when dealing with the so-called urban Dark Earth, ubiquitous in urban areas throughout Europe. In order to tackle these issues, multiscale approaches have been developed, ranging from the geomorphological study of the town and its surroundings, over detailed field observations, geochemical and archaeobiological analyses to the micromorphological study of individual stratigraphic units. These studies have not only permitted to come to a better understanding of the sedimentary matrix, but also of the processes involved in the build-up of the urban fabric, thus opening perspectives for both an in-depth analysis of the individual strata and their content, and the reconstruction of the site biography. Present session invites contributions dealing with the understanding of the complex urban stratigraphies, including the urban Dark Earth, through different approaches and at different scales. Furthermore, we invite contributions aiming to discuss how a better understanding of the urban soils and sediments can contribute to address a series of current issues in urban archaeology, including the use and organization of urban space; ancient soil pollution in towns; reconstructions of the physical (geomorphological) environment and the interactions of towns within their wider regions.

**CONTRIBUTION ABSTRACTS**

**1838. BUILDING WITH DEMOLITION DEBRIS: URBAN WASTE MANAGEMENT AT THE PUNGRT HILL-FORT (CENTRAL SLOVENIA)**

**Contribution format:** Oral  
**Contribution authors:** Agni Prijatelj (Centre for Soil and Environmental Research, University of Ljubljana | Centre for the Interdisciplinary Research in Archaeology (CIRA), University of Ljubljana) – Helena Grčman (Centre for Soil and Environmental Research, University of Ljubljana) – Matej Dolenec (Department of Geology, University of Ljubljana) – Luka Gruškovnjak (Centre for the Interdisciplinary Research in Archaeology (CIRA), University of Ljubljana) – Petra Vojaković (Centre for the Interdisciplinary Research in Archaeology (CIRA), University of Ljubljana | Arhej Ltd.) – Matija Črešnar (Centre for the Interdisciplinary Research in Archaeology (CIRA), University of Ljubljana)

The fortified urban settlement of Pungrt (Central Slovenia) was occupied from the Early Iron Age (8th/7th century BC) to the Early Roman Period (2nd century AD). Its interior was divided into a series of man-made terraces, densely built-up with houses arranged in parallel rows. Amongst a group of 50 excavated buildings, 14 were unearthed on the lowest terrace, adjacent to a 2m-wide gravel road running along the inner face of the monumental stone rampart. In this area, where the deepest and best-preserved deposits were found, the floor sequences of timber-framed buildings consisted of alternating preparation substrates and constructed floors. While often overlooked in archaeological research, such preparation substrates serve as a rich archive of data on urban waste and its management. At Pungrt, micromorphological and geochemical analyses revealed that these deposits comprised a mixture of loose occupational debris, remnants of old floors, plasters, finishing coats, and other construction materials, all chaotically distributed within the layers. Some of the most significant materials identified included fragments of dung, metalworking slag and types of lime plaster absent from other sections of the urban stratigraphic sequence. The composition of these deposits suggests they were a mixture of indoor and outdoor, occupational and demolition debris employed as a levelling prior to the construction of a new building. Characterised by a plethora of anthropogenic inclusions embedded in an organic- and phosphate-rich matrix with significant bioturbation, these deposits bear similarities to urban Dark Earths, and, like them, pose challenges



in reconstructing complex, multi-layered (pre-)depositional histories. Nevertheless, they also provide distinct evidence of urban waste management, recycling, and circular economy practices, which must be considered in any reconstruction of urban biographies of sites, where such deposits are present.

**783. INTERPRETING THE URBAN STRATIFICATION PROCESSES: AN INTEGRATED GEOARCHAEOLOGICAL STUDY OF DARK EARTH IN THE HISTORICAL CENTER OF OUDENAARDE (BELGIUM)**

**Contribution format:** Oral  
**Contribution authors:** Meihui Li – Mónica Alonso-Eguiluz (Vrije Universiteit Brussel) – Christine Pümpin – David Brönnimann – Sarah Lo Russo – Simon Kübler (University of Basel) – Wouter De Maeyer (SOLVA) – Kristin Ismail-Meyer (University of Basel) – Yannick Devos (Vrije Universiteit Brussel)

The growing archaeological investigation of urban deposits dating back to the Medieval period has been crucial in disclosing different stages of European urbanisation. However, the seemingly unstratified deposit known as Dark Earth, commonly found at urban sites, presents a major challenge to archaeologists. Its macroscopic homogeneity makes it difficult to identify and interpret its internal complexity without integrated geoarchaeological investigation. Due to its thick, dark-coloured, and homogeneous characteristics, Dark Earth has often been discarded or interpreted as the result of a singular natural or anthropogenic event. Over the last decades, Belgium, as one of the most densely urbanised regions since medieval times, has been one of the major focal points for European Dark Earth research. During the excavation of the Broodstraat site in the historical centre of Oudenaarde, at the margins of the Scheldt River, a late medieval Dark Earth was excavated. A micromorphological study has been realized to detail the site stratigraphy and to examine the site formation processes including the taphonomical changes involved in the formation of the Dark Earth. Additionally, all data collected for this research is digitized into the two-pillar database systems I-GEOARCHrec and I-GEOARCHive. The present study intends to discuss how the micromorphological study of this Dark Earth can contribute to our understanding of the organisation of space and human-environment interactions, including waste management.

**2061. STRATIGRAPHIC AND TAPHONMIC CONSIDERATIONS IN AN OPEN-AIR FUMIER SEQUENCE, CÁRTAMA, MÁLAGA, SPAIN**

**Contribution format:** Oral  
**Contribution authors:** Rowena Banerjea (University of Reading) – Mónica Alonso Eguiluz (Vrije Universiteit Brussels) – Marcos García García (Universidad de Granada) – Lionello Morandi (Università di Pisa | Eberhard-Karls-Universität Tübingen) – Jérôme Ros (Institut des Sciences de l’Evolution - ISEM (UMR 5554), University of Montpellier) – Luc Vrydaghs – Yannick Devos (Vrije Universiteit Brussels) – Francisco Melero García (Colección Museográfica de Cártama) – Aleks Pluskowski (University of Reading) – Irene Bertelli (Università di Pisa | Sapienza Università di Roma)

Fumier is a French word that translates to "dung" or "manure". It refers to animal waste, such as excrements from stables and barnyards. In archaeology, fumier sequences play a primary role in the study of livestock management and the use of space in prehistoric pastoralist societies. They are formed when dung that accumulated in sheepfold caves and rock shelters is burnt with other plant remains, resulting in an overlapping of burnt and unburnt sedimentary layers. The high-resolution analysis of these sedimentary layers (deposits) informs us about livestock’s diet, the use of vegetal resources in animal husbandry, and explores practices relating to seasonality. According to the literature, only one open-air fumier is known (outside of the usual rock shelter setting) and is not published, which makes the identification of one in an urban, medieval (Almohad) context at Cártama so interesting. The key features of a fumier sequence are:

- Alternating burnt and unburnt sub-horizontal layers, that grouped in sequences ("layer cake") representing stabling episodes.
- Clearly observable in profile, very difficult to excavate in plan due to variability in the burning across the floor.
- Presence of dung.
- Presence of bedding and other plant material (maybe the remains of the corral’s fence) that has been set alight to burn the dung.

The first two of the above bullet points were observable during excavation and sampling at Cártama. The presence of dung, bedding and other plant materials and evidence for burning are all documented here as a result of multi-proxy bio- and micro-archaeological analyses owing to exceptional preservation conditions at the site, which are examined in this paper. Additional paper contributors: Marie Larrieu, University of Montpellier, Email: marie.larrieu@umontpellier.fr. Nicolas Losilla, Universidad de Granada, Email: nicolaslosilla@gmail.com. Guillermo García-Contreras, Universidad de Granada, Email: garciacntreras@ugr.es. Erika Ribechini, Università di Pisa, Email: Erika.ribechini@unipi.it.

**1568. URBAN GEOARCHAEOLOGY, ANTHROPOGENIC STRATIGRAPHY AND “DARK EARTHS”: NEW WORLD PERSPECTIVES FROM MANHATTAN ISLAND, U.S.A**

**Contribution format:** Oral  
**Contribution authors:** Joseph Schuldenrein (Geoarcheology Research Associates)

The formal concept of “Dark Earths” is not widely utilized in North America. In part, this is due to geographically based epistemological perspectives. These include the more recent time-depth of the cities in the Americas, the reach of the urban imprint on broader, sparsely settled New World landscapes, and limited spatial overlap of discrete urban cultures and their material culture footprints. Arguably, discrete palimpsests, above non-anthropogenic landform segments, render the reading of New World “Dark Earth” sediment matrices somewhat more facile. This presentation illustrates both contrasting and comparable Old and New World urban sequences. We use Manhattan Island and New York City the signature example of the latter. We track modeling of urban sequence stratigraphy using methodologies developed over the past three decades. We stress that “Dark Earths” in the Americas are similar in matrix composition to those in Europe and the Old World, but their antiquity ranges on the order of centenary rather than millennial antiquity. Site formation processes are largely similar and stratigraphic and facies variability require similar analytic techniques. Formal legal guidelines mandate that the concept of “site integrity” must be reframed as urbanization activities advance at accelerated rates. In this connection we need to consider “landfills” as the dominant archaeo-stratigraphic unit of the late 20th and 21st century Anthropocene. “Landfills” are not monolithic disturbance units world-wide. Instead advancing analytical technologies show us how to sort out what were once dismissed as “jumbled” site residues. We are on the cusp of developing refined fine-scale sequences with high resolution analyses, GIS mapping and AI strategies.

**1362. EXPLORING THE URBAN STRATIGRAPHY OF THE PARISH CORE: THE CASE OF SIBIU (RO)**

**Contribution format:** Oral  
**Contribution authors:** Daniela Veronica Marcu Istrate (Romanian Academy, „Vasile Pârvan” Institute of Archaeology | Cultural Association „Hieronymus”)

Urban archaeology rarely faces extensive research in parish sites, which usually are still in use, have disappeared, or are occupied by different buildings. However, sometimes fortunate situations also occur, as in the case of Sibiu (Transylvania, RO), a site that has recently undergone major archaeological surveys during construction works. The settlement was established in the mid-12th century by immigrants from Central Europe (Saxons) to quickly obtain urban status, and in 1191, it was mentioned as the see of the Saxon Provostship. The religious core (fortified wall, main church, cemetery, and chapels) was established as early as the 12th century, evolving sinuously over the following centuries. Gradually, the fortified enclosure and the chapels disappeared, and the cemetery was closed in the mid-16th century. Meanwhile, the parish church was expanded and modified, with parts demolished and parts added, reaching the form it retains to this day by the mid-16th century. The interior of the church was converted into a cemetery, probably in the 14th century. However, the graves dug into the ground were sooner or later replaced by vaults and funerary monuments, which subsequently multiplied, overlapped, and replaced each other. These activities soon ended in a filling mixed with building materials, human remains, and artifacts. Finally, the situation was once again changed in the 19th century, when the inner cemetery was removed, and the empty hole was filled with garbage and rubble. This paper will explore the challenges faced by this excavation, following several main questions: - How does the stratigraphy of the outer cemetery reflect the constructive works? How did the latter affect the cemetery and our understanding of the urban site? - What were the challenges encountered during the excavation of the inner cemetery? What was the impact of destroying the vaults and replacing them with rubbish and debris?

**291. FROM MICROSCOPE TO MAGNETIC; NEW METHODS FOR INTEGRATING MAGNETIC ANALYSIS WITH GEOARCHAEOLOGY USING MICROMORPHOLOGY**

**Contribution format:** Oral  
**Contribution authors:** Ada Dinckal (Archaeological Micromorphology and Biomarkers (AMBI Lab), Universidad de La Laguna | Laboratorio de Paleomagnetismo, Universidad de Burgos) – Joshua Feinberg (Institute for Rock Magnetism, University of Minnesota) – Angel Carrancho (Laboratorio de Prehistoria, Universidad de Burgos | Laboratorio de Paleomagnetismo, Universidad de Burgos) – Carolina Mallol (Archaeological Micromorphology and Biomarkers (AMBI Lab), Universidad de La Laguna)

Geoarchaeological research has long utilized multi-proxy approaches to develop robust interpretations of human behaviour, site formation processes, and environmental and climatic contexts. In recent years, this has increasingly focused on single-sample analysis, where micromorphology serves as a means of integrating multiple lines



of analysis into a coherent, succinct, and robust way. However, within these research parameters, magnetic data—both archaeomagnetic and rock magnetic—has often been overlooked due to challenges in integrating it directly into single-sample analyses alongside micromorphology. In this presentation, we introduce new methodological advancements that integrate archaeomagnetic, and rock magnetic data with micromorphology. At the core of this methodological improvement is the use of a quantum diamond microscope (QDM), which can analyse magnetic fields directly on thin sections. We introduce the QDM and outline methodological frameworks for its application, demonstrating how it can be utilized to integrate rock magnetic data with micromorphological thin sections. We highlight this initial application through the case study of a combustion feature before discussing how these methodological improvements yield more robust interpretations of both anthropogenic and environmental data at the microscale, and how this can be utilized within multi-scalar approaches to exploring urban sites and landscapes.

431. READING THE URBAN STRATIGRAPHY: EXAMPLES FROM THE HISTORICAL CENTER OF BRUSSELS (BELGIUM)

Contribution format: Oral  
Contribution authors: Yannick Devos – Luc Vrydaghs (Vrije Universiteit Brussel)

Reading the stratigraphy in Brussels is – like in many other towns – a difficult exercise. The main reason behind this is the fact that there are many different occupation phases succeeding each other in a very restricted space, resulting in very deep and complex stratigraphical sequences. In order to read the stratigraphy, a multiscale geoarchaeological approach has been adopted, including field and microscopic observations (Devos et al., 2020). Such an approach has shown to be very rewarding to decipher the processes involved in the formation of the stratigraphical sequences (Devos, 2024). Present contribution intends to discuss how the systematic application of this multiscale approach – both on small and large-scale interventions, on macro- and microscopic levels – contributes to our understanding of the formation of the urban soils and sediments in Brussels, and how it provides us with new insights in a series of long-standing debates, such as the early formation of the medieval town, the importance of agricultural and horticultural activities, and the evolution of the organization of space.

1805. MICROMORPHOLOGY AND PHYTOLITH ANALYSES OF THE AGRICULTURAL FIELDS IN THE URBAN DARK EARTHS OF GENT NEDERPOLDER 1, BELGIUM

Contribution format: Oral  
Contribution authors: Mónica Alonso-Eguiluz (Archaeology, Environmental Changes and Geo-Chemistry (AMGC)-Vrije Universiteit Brussles) – Jari Mikkelsen (Raakvlak, Archaeology, Monuments and Landscapes of Bruges and Hinterland) – Tomas Bradt (Monument Vandekerckhove) – Karin Nys – Yannick Devos (Archaeology, Environmental Changes and Geo-Chemistry (AMGC)-Vrije Universiteit Brussles)

Urban Dark Earths are an ubiquitous phenomenon in European urban archaeology. Despite their common appearance during archaeological excavations in many historical town centers, the study of these homogeneous deposits has long been neglected. However, the application of new techniques and especially micromorphology have shown their potential for studying the evolution of the urban fabric. Present contribution intends to present the integration of soil micromorphology with the study of phytoliths in thin sections applied to the Dark Earth of the archaeological site of Ghent Nederpolder 1, Belgium, dated ca. 5th-8th century AD. The micromorphological study indicates, besides evidence for cultivation of the soil, the episodic input of windblown sands, testifying of the open landscape character. In order to identify the plants that have been cultivated on the medieval fields of the Nederpolder site a phytolith analysis on soil thin sections was performed. The results show indeed the presence of grasses of the pooideae subfamily, to which the most important crops belong to (i.e., wheat, barley, rye). However, only few remains of the typical phytoliths related to the inflorescences of crops (ELONGATE DENDRITIC) have been observed.

73 HOUSES AND MATERIAL CULTURE IN THE MEDIEVAL MEDITERRANEAN AND BEYOND: DOMESTIC SPACES AND SOCIAL IDENTITY IN MULTICULTURAL CONTEXTS

Session theme: 1. On artefacts and beyond  
Session format: Regular session  
Session keywords: Domestic architecture, Medieval Mediterranean, Spatial organization, Cultural dynamics, Social structure  
Session organisers: Guillem Alcolea (Universitat Autònoma de Barcelona) – Susan. Gómez (Universidade de

Évora) – Maria Isabel Molina (Universitat Autònoma de Barcelona) – Cristina Martínez-Álvarez (Archeologii i Etnologii Polskiej Akademii Nauk) – Helena Kirchner (Universitat Autònoma de Barcelona)

SESSION ABSTRACT

Domestic architecture is a fundamental source for understanding how societies shape and structure their living environments. It reflects not only the material conditions, but also the social structures, values, and cultural dynamics of each historical context. The study of dwellings presents multiple analytical dimensions: on the one hand, the organisation of space allows us to understand how functions were distributed within the household and how social organisation was reflected in it. On the other hand, building materials provide information about available resources and construction techniques. Adaptations to urban or rural environments reveal how dwellings responded to the specific needs of the environment. The material culture associated with these spaces—such as ceramics, tools, and decorative elements— offers valuable information about daily practices, production conditions, social interactions, and access to markets or distribution networks. Through architectural analysis and material culture, we can also study the processes of transformation within these communities. The medieval Mediterranean, encompassing Iberia and extending to North Africa, Southern Europe, and the Near East, presents a rich framework for exploring these dynamics. This region’s multicultural contexts—marked by interactions between Jewish, Islamic, and Christian traditions— allow for comparative approaches that highlight both shared practices and cultural divergences. This session seeks to explore and compare domestic spaces across the medieval Mediterranean and beyond and between the 8th and 15th centuries. Contributions are invited on topics including the structuring of domestic living spaces, the interplay between architectural and social change, the integration of housing within urban and rural landscapes, and the role of domestic architecture in shaping and reflecting multicultural identities. This expanded geographical and cultural perspective aims to facilitate a deeper understanding of the intersections between material culture, domestic life, and social organisation in the medieval world.

CONTRIBUTION ABSTRACTS

193. DOMESTIC SPACES AS A REFLECTION OF SOCIAL ORGANISATION AND IDENTITIES IN THE 8TH CENTURY: THE SOUTHERN RABAD OF SHAQUNDA (CORDOBA)

Contribution format: Oral  
Contribution authors: Maria Teresa Garcia (Prehistoric and Archaeology Department. University Autónoma of Madrid)

In this paper present the study of the houses discovered in the southern rabad of Shaqunda (Cordoba- Madinat Qurtuba), built and inhabited between the 8th and first quarter 9th centuries. In its analysis we have defined the organisation of the different spaces in the houses, in order to understand how the functions were distributed within the household and how the social organisation was reflected in it. We also pay attention to the particular building materials, reused decorative materials and their construction techniques, complemented by the analysis of the material culture documented in the spaces (ceramics, glass, ect..). This study has made it possible to define the first medieval andalusi models of domestic housing in Córdoba and to characterise the population that inhabited them. It constitutes a paradigmatic example of domestic spaces in the medieval world of the 8th century. The analysis of the distribution of the domestic area in the overall layout of the suburb has allowed us to understand the organisation and distribution of functionalities in this suburb. On the other hand, has made it possible to integrate the houses into the urban landscape of the emiral Umayyad capital of al-Andalus, as a precedent to the Caliphate houses.

1709. HOUSEHOLDS AND DOMESTIC MATERIAL CULTURE IN THE KŪRA OF ILBĪRA: RURAL-URBAN PERSPECTIVES FROM TÓZAR AND MADĪNAT ILBĪRA

Contribution format: Oral  
Contribution authors: Luca Mattei (University of Granada) – Cristina Martínez-Álvarez (Archeologii i Etnologii Polskiej Akademii Nauk) – Yaiza Hernández Casas – Teresa Koffler Urbano (University of Granada) – María González Castañón (Museo Nacional de Arqueología Subacuática) – Marian Rebkowski (Archeologii i Etnologii Polskiej Akademii Nauk) – Guillermo García-Contreras Ruiz (University of Granada)

Domestic spaces and the material culture associated with them serve as key indicators in the archaeological record, helping us to understand the way of life of past societies. Their spatial organisation and material remains provide insight into daily practices, the use of natural resources, the orientation of productive strategies, and possible areas of cultural and trade networks. In response to this need, within the framework of the ERC SyG



“MedGreenRev”, the Cátedra Gómez-Moreno and the “DICRAN” project, we propose a comparative analysis of two distinct contexts of the Kūra of Ilbira (south-east of the Iberian Peninsula): one of an eminently urban character and another fully rural. We aim to highlight the differences between Madīnat Ilbira, the capital of Kura, an urban centre where a predominantly Islamic social component coexisted with a Christian community, and the rural site of Tózar, where a Christian Dhimmī peasant community resided. This study is based on the analysis of domestic architecture as well as the ceramic and metallic material remains found in these contexts. Our objective is to determine whether, beyond religious differences, social distinctions existed, how the dwellings were laid out, and what types of resources were utilised and what daily life practices in these two contexts.

**462. HOUSES AND MATERIAL CULTURE: A RECENTLY EXCAVATED HOUSE IN MADÎNA BALAGHÎ (BALAGUER, CATALONIA, SPAIN)**

**Contribution format:** Oral  
**Contribution authors:** Guillem Alcolea – María Isabel Molina Campuzan. – Andrea Collado Padilla – Helena Kirchner (Universitat Autònoma de Barcelona)

This proposal focuses on the study of domestic spaces and the material culture recovered from the Islamic archaeological site of Pla d’Almatà, located in the north-east of the Iberian Peninsula (Balaguer, Spain). It is an exceptional context corresponding to the deserted city of Madīna Balaghī, situated on the Upper Frontier of al-Andalus. The city was occupied from the early 8th century until its conquest by Count Ermengol VI of Urgell in 1105. Only the area beside the River Segre was reoccupied by Christian settlers, while Pla d’Almatà remained abandoned. The preservation of its urban layout and architecture makes it a key reference for the study of Andalusī domestic architecture. The primary objective is to examine the domestic assemblages of the dwellings at Pla d’Almatà. To this end, House 15 will be presented as a case study, as its excavation began in 2023 and is currently ongoing within the framework of the European project “MEDGREENREV (ERC–SyG–101071726)”. Firstly, the characteristics and spatial organisation of the house will be analysed. Secondly, the most significant recovered materials and their locations will be discussed, including storage ceramics (jars, pitchers), cooking ceramics (pots, casseroles), and a notable concentration of metal objects found in situ (nails of various sizes and hinges), which provide valuable insights into the context of the house’s abandonment. Additionally, proposed analyses of the material culture will be outlined. In the case of pottery, the sampling protocol for organic residue analysis will be introduced, aiming to clarify aspects related to its functionality and daily practices. By integrating architectural analysis with material culture studies, this research contributes to broader discussions on the structuring of domestic spaces. It explores the relationship between urban form and household organization, as well as the impact of historical processes on daily life in the city.

**1069. THE MEDIEVAL ALQUERÍA AT TORRE D’EN GALMÉS: DOMESTIC SPACES, TEMPORAL ENTANGLEMENTS, AND DAILY LIFE ON ISLAMIC MENORCA**

**Contribution format:** Oral  
**Contribution authors:** Alexander Smith (SUNY Brockport) – Amalia Pérez-Juez (Boston University) – Kathleen Forste (Brown University) – Helena Kirchner – Guillem Alcolea (Universitat Autònoma de Barcelona)

The Menorca Archaeological Project (MAP) has been investigating the remains of a medieval, Islamic alquería at the Iron Age site of Torre d’en Galmés since 2021. Building on years of work by the team from Boston University, MAP has documented dozens of house structures between and on top of Iron Age houses in varying states of preservation, carrying out intensive excavations on four domestics compounds thus far. This paper will discuss the results of MAP’s most recent excavations of Spatial Unit (SPU) 7, located in the center of Torre d’en Galmés. Exhibiting a sprawling ground plan, multiple subsidiary rooms, evidence of plastered walls, abundant material culture, and preserved working spaces, SPU 7 is an ideal example of a medieval house compound and an excellent starting point to discuss Islamic domestic spaces during the 11th-13th centuries C.E. This paper will discuss MAP’s recent findings, which have dramatically expanded our understandings of medieval Islamic settlement and domestic practices on the island, and have ramifications well-beyond the shores of Menorca.

**1055. BETWEEN LAND AND SEA: AN OVERVIEW OF MALACOLOGICAL RESEARCH IN CACELA-A-VELHA**

**Contribution format:** Oral  
**Contribution authors:** Daniela Cabral (University of Algarve, Faculty of Human and Social Sciences | Laboratory of Forensic Anthropology, Centre for Functional Ecology, University of Coimbra) – Beatriz Pinto (University of Algarve, Faculty of Human and Social Sciences | ICaREHB – Interdisciplinary center of archaeology and the evaluation of human behavior) – Maria Valente (University of Algarve, Faculty of Human and Social Sciences | CEAACP

– Centre for Studies in Archaeology, Arts and Heritage Sciences) – Cristina Garcia (CCDR Algarve – Regional Coordination and Development Commission of Algarve, I.P.)

Cacela-a-Velha, in Vila Real de Santo António, Algarve, is a fortified settlement within the Ria Formosa, a productive lagoon system known for its biodiversity and bivalve harvesting. This study analyzes malacological remains from archaeological excavations (2001–2022) at Poço Antigo, in the extra-mural area. The findings relate to the Almohad quarter and its abandonment between the 12th and 13th centuries. Over 30,000 mollusc remains were identified, exceeding 50 kg and representing more than 50 species. Bivalves dominate the assemblage, with fewer gastropods and other classes (thecostraca, scaphopods, cephalopods) occurring in low numbers. The collection reflects the availability of aquatic resources in the Ria Formosa, with several species still consumed today. Most invertebrates were likely used for food, including *Donax trunculus* (wedge clam), *Ruditapes decussatus* (good clam), *Cerastoderma edule* (cockle), and *Ostrea edulis* (European flat oyster). Some species, such as *Glycymeris* spp. (dog cockles) and *Pecten maximus* (great scallop), were likely collected for their shells, with *Glycymeris* possibly used as fishing weights due to perforations, while *P. maximus* may have served as containers or ornaments. Gastropods suggest dietary and decorative uses, as well as intrusive occurrences. Some marine species, such as *Aporrhais pespelecani* (common pelican’s foot) and *Charonia lampas* (triton), were likely adornments. Consumed species include *Bolinus brandaris* (purple dye murex), *Hexaplex trunculus* (banded murex), and the terrestrial *Theba pisana* (Mediterranean snail). In contrast, *Cornu aspersum* (garden snail) and *Xeroplexa intersecta* (wrinkled snail) are likely intrusive, while *Otala lactea* (Moorish snail) could have been eaten, though no direct evidence confirms this. The remains show moderate preservation, significant fragmentation, and few signs of carbonization, suggesting rapid food processing, likely raw or lightly cooked. These findings confirm the role of molluscs in the medieval diet and their potential non-food reuse in Gharb al-Andalus.

**2048. WHO’S IN THERE? NEW PERSPECTIVES ON THE INTERSECTIONS OF GENDER, RELIGION AND DOMESTIC LIFE IN MEDIEVAL IBERIA**

**Contribution format:** Oral  
**Contribution authors:** Marcos Garcia (University of Granada)

One of the defining characteristics of the Middle Ages in the Iberian Peninsula is the coexistence of diverse religious cultures. Given the central role of religion not only as an ideological construct but also as a socio-cultural phenomenon shaping social relations, understanding the processes through which religious (and ethnic) identities were created, recreated and transformed is essential for analysing the historical dynamics of this period. In this regard, the social practices developed within the domestic sphere—recognised as the primary site of socialisation and enculturation—are of particular significance. Moreover, as this paper aims to demonstrate, any attempt to comprehend social dynamics within and through the domestic sphere that fails to integrate gender as an analytical category will necessarily remain incomplete. This presentation outlines the theoretical, analytical, and methodological framework of an ongoing research that examines the intersection of religion, gender, and everyday life in medieval and early modern Iberia, with a specific focus on the sphere of food practices. To this end, a series of theoretical reflections is presented to justify the chosen perspective, providing an innovative interpretative framework for the analysis of archaeological data derived from various contexts across the Iberian Peninsula.

**365. HOUSES AND MATERIAL CULTURE IN MEDIEVAL CÓRDOBA: IDENTIFYING THE USE OF DOMESTIC SPACES AND SOCIETAL TRANSFORMATIONS THROUGH THE CERAMICS**

**Contribution format:** Poster  
**Contribution authors:** Elena Salinas (Escuela de Estudios Árabes, CSIC) – Cristina Camacho Cruz (Universidad de Granada) – Marina González Virseda (Universidad de Almería)

The Islamic period of the present-day city of Córdoba (Spain) lasted from 711 to 1236 CE. During these centuries, a succession of political dynasties of different origins (Umayyads, Taifa Kingdom, Almoravids, Almohads, etc.) coexisted firstly with the local Visigothic and later Andalusī substrate. In this multicultural and multi-religious environment, the domestic ceramic ware was produced and consumed locally, changing according to factors as diverse as identity, social differentiation, purchasing power, culinary customs and fashion. The spaces of the houses of Córdoba and their uses have been interpreted on numerous occasions thanks to the material culture associated with them, and especially the ceramic household. The aim of this work is to show comparative examples of urban houses and the elements that have remained throughout the entire Andalusī period and others that are characteristic of a specific period of time, as well as the reason(s) why they were adopted in the daily life of Madīnat Qurtuba.



1048. EVIDENCE OF GOOSE-HATCHING AND USAGE OF WILLOW HEN COVER AT A 13TH CENTURY RURAL SETTLEMENT IN THE SOUTHERN HUNGARIAN PLAIN

Contribution format: Poster  
Contribution authors: Dénes Szabó (Government Office of Csongrád-Csanád County)

Several interpretations have already arisen regarding the possible functions of various internal pits in semi-subterranean buildings of the Árpád period settlements (11-13th century), as these features can indicate separate spaces for activities inside houses and might provide clues to the spatial patterns of everyday life. A find at the settlement excavated at the Csanádpalota, Juhász T.-tanya site (SE Hungary) can be interpreted as an in-building hatching nest: goose eggs discovered in situ in the inner pit of the half-buried building and the charred plant remains along its edge indicate that the pit was used for hatching geese. The burned willow pieces reflect the usage of a woven willow cover over the brooding goose or hen. Various ethnographical and historical parallels indicate that the hatching of the three eggs might have happened at either late spring or early summer, this was also the timeframe when the building got burned down, preserving the remains of the nest. Likely evidence for pre-emptive sterilization of the building via fumigation was also found. What might the find tell us about the purpose of in-house pits, and human-animal interactions in household units?

2187. HOUSES AND MATERIAL CULTURE IN THE MEDIEVAL STARÁ BOLESLAV

Contribution format: Poster  
Contribution authors: Katerina Levá – Ivana Boháčová – Ivana Hrušková (AU - Institute of Archaeology of the Academy of Sciences of the Czech Republic)

Stará Boleslav is an Early Medieval stronghold established around the year 900 in the lowlands along the Elbe River. It belonged to the Přemyslids and, before the middle of the 11th century, became a capitular seat. This stronghold is one of the most frequently mentioned Czech Early Medieval sites in written records from the Middle Ages. The main reason for this is the murder of Prince Wenceslas (a member of the ruling Přemyslid family) by his brother Boleslav. This place played an important role in the early development of the Přemyslid state, although its significance declined in the later Middle Ages. Archaeological material uncovered during long-term rescue excavations at the site has made it possible to reconstruct a reasonably convincing picture of the form of the Early Medieval Přemyslid stronghold, its transformations, and various aspects of the lives of its inhabitants. We will primarily focus on two phases of settlement, represented, as we assume, by examples of residences of elite members – first, by log cabins from the 10th century (some of the earliest evidence of this type of building in Central Europe), and second, by their later stone successors from the 12th century, located at different parts of the stronghold. This stone building, which may have been the residence of the provost, is characterized by an exclusive material culture (e.g., glass, temple rings, and two denars). In this paper, we would like to compare these buildings with similar structures from Prague Castle.

74 ANTIQUARIAN SOCIETIES, QUO VADIS?

Session theme: 4. De nobis fabula narratur: archaeological practice and a profession in flux  
Session format: Regular session  
Session keywords: antiquary, antiquarian, society, future, heritage, development  
Session organisers: Simon Gilmour (Society of Antiquaries of Scotland) – Meriel Mcclatchie (University College Dublin)

SESSION ABSTRACT

Antiquarian learned societies emerged over the last few centuries across Europe in a variety of forms particular to the country and time in which they were formed. A recurring feature of these organisations is that they tended to play a central role in the development of archaeology as a discipline and the creation of the heritage sector, focused mainly around the protection of sites and monuments and also the development of museums and the accumulation and curation of material culture. In many cases they led archaeological thinking that came to set the parameters of how we interpret the past. In this session we want to explore the role for antiquarian societies in the 21st century. These societies are constituted in many different ways, some are entirely voluntary while others have paid staff. Key to their identity is membership. Do their values still hold? Does their approach, and membership, reflect what is needed in society today? How do they balance the needs of a modern, often charitable, organisation with the concept of an ancient learned society? Are their long histories a foundation or a prison, a point of pride or cause of shame? Most importantly: can they be relevant?

CONTRIBUTION ABSTRACTS

1228. AN ANTIQUARIAN SOCIETY IN IRELAND: CONFINED TO THE PAST OR LOOKING TO THE FUTURE?

Contribution format: Oral  
Contribution authors: Meriel Mcclatchie – Kelly Fitzgerald (University College Dublin) – Aideen Ireland (Royal Society of Antiquaries of Ireland)

The Royal Society of Antiquaries of Ireland (RSAI) was established in 1849, a time before Ireland was to gain its independence from Britain. It began as a local society (the Kilkenny Archaeological Society) and grew to become a national organisation, taking the name of the RSAI in 1890. Its inception was thanks to a small group of men who enjoyed privileged positions in society: three clergy, a newspaper editor and a political activist. Its ethos was more inclusive, however - it was established to be non-sectarian and non-political, and its membership was intended to be socially inclusive. The aim of the society was to ‘preserve, examine all ancient monuments and memorials of the arts, manners and customs of the past, as connected with the antiquities, language, literature and history of Ireland’. Nowadays, the RSAI is led by a woman, and the statutory protection of monuments in Ireland means that its focus is on supporting learning, scholarship and debate, as well as outreach activities for schools and the general public. Certain aspects have remained the same, however - even though Ireland has been a republic for almost a century, the RSAI retains the term ‘Royal’ within its title. This paper will critically examine how an institution with an unusually long history (within an Irish context) can maintain the integrity of its original mission, whilst actively engaging in the 21st century.

1771. PAST, PRESENT & FUTURE: THE EVOLVING ROLE OF THE SOCIÉTÉ JERSIAISE IN RESEARCH, HERITAGE, AND COMMUNITY ENGAGEMENT

Contribution format: Oral  
Contribution authors: Hervé Duval-Gatignol (Société Jersiaise, Field Archaeologist | UMR 6566, CReAAH, Université de Rennes, Research associate) – Agatha Medina Ruiz (Aix-Marseille Université, Archaeology Graduate Student) – Nicolette Le Quesne Westwood (Société Jersiaise, Chair of History Section)

Founded in 1873, the Société Jersiaise is a registered charity based in Jersey (Channel Islands). Since its establishment, its mission has been to conduct and promote research while sharing knowledge as widely as possible for the benefit of Jersey’s island community. To achieve this, it relies on the efforts of its Sections and Departments, as well as its extensive collections and resources. These objectives are pursued through events, conferences, publications, and collaborations with local partners and international institutions, to promote history, culture, language and environmen. In 2023, we celebrated our 150th anniversary - an important milestone that provided an opportunity to reflect on our achievements, particularly in archaeology, where the research conducted by our founding members played a fundamental role in shaping the Société Jersiaise. Today, with over a thousand members and around a hundred active volunteers, our organisation faces the need to renew itself to generate the same level of engagement as in the past. This responsibility falls to our decision-making members within the Executive Committee, our President and Vice-President, as well as our staff, including our Chief Executive Officer. There are many challenges ahead, and we are committed to an ongoing process of transformation while staying true to our roots. This paper aims to highlight the roles of the Société Jersiaise, some of its key contributions - particularly through the example of archaeology - and how important it is to remain relevant. In a world where learned societies often no longer have the same impact as before, our actions only hold meaning if they are understood by and for others. Now more than ever, it is through the engagement of our members, “the heart of our organisation and the focus of the work we do”, that we can shape a future where we make a real difference.

1024. HIDDEN VOICES: FEMALE SCOTTISH ANTIQUARIANS

Contribution format: Oral  
Contribution authors: Doug Rocks-Macqueen (Open Past) – Joana Valdez-Tullett (Wessex Archaeology) – Rebecca Jones (National Museums Scotland) – Elliot Knell (Society of Antiquaries of Scotland) – Lucia Michielin (University of Edinburgh) – Jeff Sanders (Society of Antiquaries of Scotland)

Women have been allowed to be ‘Fellows’ of the Society of Antiquaries of Scotland since 1901 (over 75 years after the men); prior to this, they were ‘Lady Associates’. This was over three decades since the ‘Edinburgh Seven’ ([https://en.wikipedia.org/wiki/Edinburgh\\_Seven](https://en.wikipedia.org/wiki/Edinburgh_Seven)) broke down academic barriers as the first undergraduate female students at any British University. Many female Scottish antiquarians of the 19th and 20th centuries have made a significant contribution to Scottish archaeology, although often not given due credit for their work. This paper will report on the Hidden Voices project, where a few current Fellows are collaborating to raise the profile



of these women, increasing visibility of their work and contributions for archaeology. This work group has regular meetings which involve creating and updating Wikipedia pages, with further plans for podcasts, posters and papers. This is one way in which the current Society can recognise some of its past Fellows, and consider their contemporary relevance.

**1890. ‘THE PAST IS ANOTHER COUNTRY’?: NEXT STEPS FOR THE SOCIETY OF ANTIQUARIES OF LONDON**

**Contribution format:** Oral  
**Contribution authors:** Natasha Mcenroe (Society of Antiquaries of London)

2024 was a milestone year for the Society of Antiquaries of London because it saw the purchase of our historic premises in Burlington House, Piccadilly - premises which had been designed and built specifically for the Society and its extensive collections. This purchase was preceded by a period of uncertainty for the Society, during which long-term investment had not been possible as lengthy negotiations with the British government continued. The Society of Antiquaries of London’s identity and values can be traced back to its foundation in the early 18th century; the Society and its Fellows, Trustees and staff have always been fascinated by the material past. An enthusiasm for history when planning for the future can be an advantage, providing a much-needed sense of perspective. But a reverence for the past when examining the relevance of our work today risks hindering progression of the Society’s charitable aims. Now, as the new owners of the 150-year-old building, we are examining the role of the antiquarian learned society in the 21st century, and exploring how our activities and the use of our building can help us continue our mission in the modern era. Natasha McEnroe was appointed General Secretary of the Society of Antiquaries in April 2024. Prior to this, she was Keeper of Medicine at the Science Museum, where she oversaw the delivery of the new £4 million Medicine Galleries project, joint winner of the Art Fund Museum of the Year 2020. Before the Science Museum, she was Director of the Florence Nightingale Museum and her other roles have included the Grant Museum of Zoology at UCL and Dr Johnson’s House, where she remains a Trustee.

**582. THE ROLE OF THE ANTIQUARIAN SOCIETIES IN GREECE IN THE 21ST CENTURY**

**Contribution format:** Oral  
**Contribution authors:** Kleanthi Pateraki (Independent)

The antiquarian societies in Greece have been founded since the establishment of the Greek state (1830). Most of them are mixed although male dominated, while a few others are female. Their purposes vary, however their common goal is the study, preservation and publication of Greek antiquities and generally the protection, preservation and dissemination of the Greek cultural heritage. Some antiquarian societies have a Pan-Hellenic reach and others are more limited, concerning a prefecture or a geographical district of Greece. Some rely on volunteers, others on subscription membership, and others on hired staff. However, all of them have a board of directors and consist of scientists (archaeologists, historians, philologists, etc.), artists, writers, even university professors. Since their foundation to the 21st century, there have clearly been changes in the character of Greek antiquarian societies, related to the changes in the conditions of Greek society as a result of historical, political and economic events. The aim of this oral presentation is to examine all the aforementioned issues. In addition, the role of the Greek antiquarian societies in the cultural heritage management of Greece in the 21st century will be discussed in detail. Finally, it will be demonstrated to which extent they keep up with current events, developments and the needs of our times.

**2075. THE ANTIQUARIAN SOCIETY OF CUMBERLAND AND WESTMORLAND, WHICH MAY GOD PROSPER**

**Contribution format:** Oral  
**Contribution authors:** Gill Hey (Cumberland and Westmorland Antiquarian and Archaeological Society)

Thus concluded the Reverend James Simpson, Vicar of Kirkby Stephen and first President of the Society, at its inauguration in 1866. Since that time, despite the presence of internationally-important archaeological sites like the Neolithic stone axe factories in Langdale, Hadrian’s Wall on the Roman limes and important Cistercian Abbeys such as Furness, the Society at first struggled to survive. Today, however, it has around 800 members, a lively programme of events and funds to provide grants for research and publication. The absence of a university archaeology department in the vicinity has been a curse but also a blessing, for the Society provides a hub for researchers from elsewhere but, importantly, for the community groups that are very active in the county. Rev Simpson outlined a research programme for the county in 1866 and the present society has just issued its current research framework. A comparison enables interesting reflection on change over 160 years. But what next?

**1944. THE FUTURE OF THE SOCIETY OF ANTIQUARIES OF SCOTLAND: FACING MODERN CHALLENGES**

**Contribution format:** Oral  
**Contribution authors:** Simon Gilmour – Helen Spencer – Jeff Sanders (Society of Antiquaries of Scotland)

The Society of Antiquaries of Scotland stands at a crucial juncture as it navigates the 21st century. With over two centuries of dedication to preserving and promoting Scotland’s archaeological and historical heritage, the Society must now adapt to rapidly changing societal and technological landscapes. This paper explores the future trajectory of the Society, emphasizing its commitment to inclusivity, interdisciplinary research, and public engagement. Economic instability threatens Scotland’s heritage, putting historical sites and artifacts at risk due to reduced funding. Moreover, the digital revolution presents both opportunities and challenges; while digital archives and virtual tour. can democratize access to history, they also require substantial investment and expertise. The Society must also address the evolving interests and demographics of its membership. Engaging younger generations and diverse communities is essential for the Society’s sustainability. This involves the evolution of its vision and values, reconsidering what Fellowship means in the 21st century, while also rethinking traditional methods of outreach and education, embracing new, innovative ways to make Scotland’s rich heritage relevant to all. The future of the Society of Antiquaries of Scotland centres on its ability to confront these challenges head-on. By fostering a culture of resilience, adaptability, and inclusivity, the Society can continue to protect and celebrate Scotland’s unique historical legacy for generations to come. This paper will briefly outline some of the ways the Society is looking to adapt and engage with these challenges.

**854. AN INTERNATIONAL PERSPECTIVE OF THE SOCIETY OF ANTIQUARIES OF SCOTLAND THROUGH SOME MUNRO’S UNPUBLISHED DOCUMENTS**

**Contribution format:** Poster  
**Contribution authors:** Angelica Gabrielli (University of Verona)

Robert Munro was the secretary of The Society of Antiquaries of Scotland from 1886 to 1899. Precisely at that period belong some autograph documents conserved in the De Stefani’s Private Archive, in the Verona’s State Archive. Specifically, they consisted of two letters, a postcard, and two attachments - concerning the program of Rhind Lectures - sent from Munro to De Stefani between 1888 and 1890. The documents, which seem to be unprecedented, are primarily related to the publication of the author’s most important contribution, “The Lake-Dwelling in Europe”, published in 1890. Notably, Munro requested information, illustrations, and permission to reproduce materials regarding certain excavations conducted by De Stefani, who served as the inspector of ministerial excavations in the Verona area during the latter half of the 19th century. These excavations pertained, of course, to the Bronze Age wet settlement considered in the project. Also, he asked to be an intermediary for other Italian scholars and their respective findings, such as Cordenons. This research is focused on a preliminary analysis of the correspondence between Munro and De Stefani, involving a detailed examination and transcription of the archival documents. The first section of the study quantitatively assesses these documents, while the second contextualizes them within the broader scientific milieu of the time, particularly the relationships between key figures in historical archaeology and their impact on major archaeological investigations. Finally, the poster partially explores the influence of European antiquary societies, such as the Scottish one, and their international connections through De Stefani’s study case. However, the years under analysis fit within the fundamental decades in which the disciplines developed, confirming the present relevance of this type of organisations in the History of archaeological studies.

**1986. ARCHAEOLOGY AND THE PUBLIC IN 19TH CENTURY LEICESTER**

**Contribution format:** Poster  
**Contribution authors:** Molly Pye (University of Leicester)

James Francis Hollings (1806-1862) and James Thompson (1817-1877) were newspaper editors/proprietors and archaeological pioneers from Leicester who were heavily involved in learned organisations. Analysis of the Leicestershire Mercury and Leicester Chronicle found unexpected evidence that public value was considered a distinguishing feature of archaeology, perhaps more than its objects of study, and was used to distance the discipline from antiquarianism. Thompson and Hollings shared a strong belief in the importance of archaeology to society, their involvement entangled with political activism. The perceived needs of the public drove their choices and archaeology’s public value motivated them to widen participation and gain support for the discipline. Archaeology was deemed especially beneficial to the working class whose experiences were elucidated along with the role of hidden figures such as PC Hart. Current conditions require archaeology to improve its relationship with the public. Research into the history of archaeology is essential; understanding the role of public value in the recursive development of archaeology and its relationship with the public will foster reflexivity and act as both a source of inspiration and means for engaging the public and ensuring public value.



2403. THE LISBON GEOGRAPHICAL SOCIETY AS AN ANTIQUARIAN SOCIETY: A 150-YEAR-OLD CHALLENGE

Contribution format: Poster  
Contribution authors: Ana Cristina Martins (IHC-Universidade de Évora / IN2PAST | Lisbon Geografical Society)

Founded in 1875 to defend Portugal’s interests in the territories of Angola and Mozambique, the Lisbon Geographical Society (SGL) quickly began to fill various gaps in the country’s academic milieu, although the active Association of Portuguese Archaeologists had existed in the same city (Lisbon) since 1863. Nothing, however, prevented the SGL from contemplating archaeological research, along with practically all areas of 19th-century knowledge, from an understanding of total geography, interweaving human and physical geography. This history is obvious today when it is made up of 35 commissions and study sections, comprising most of Portuguese (mostly male) senior university professors and researchers, with the particularity of having one of the best libraries in the country and a museum with thousands of artifacts of different origins and types. However, given the countless challenges currently facing institutions of this nature, we intend to reflect on the place of the SGL in an increasingly multivocal, multicultural, and demanding society wrapped in post-colonial discourse. Added to this is the urgency of evaluating the extent to which it can and needs to respond to a new way of being and doing things for generations that are little or no match for the model that still prevails within it. In other words, it’s important to understand how to make it survive and with it 150 years of the country’s history.

75 ARCHAEOLOGICAL ADVENTURES: THE BENEFITS AND CHALLENGES ASSOCIATED WITH WORKING IN MULTIPLE COUNTRIES AND/OR SYSTEMS

Session theme: 4. De nobis fabula narratur: archaeological practice and a profession in flux  
Session format: Regular session  
Session keywords: Transnational, Mobility, Foreign, Travel  
Session organisers: Ros O Maolduin (Rubicon Heritage | IAI - Institute of Archaeologists of Ireland | INFRA Europe - Archaeology for Infrastructure) – Franziska Lehmann (DArV - Deutscher Archäologen Verband) – Marcella Giorgio (ANA - Associazione Nazionale Archeologi) – Holger Schweiter (Transnet | CIfA - Institute for Archaeologists) – Brigitte Buss (Jacobs | CIfA - Institute for Archaeologists)

SESSION ABSTRACT

Archaeologists have always travelled; the adventure of travel is what lures many to become archaeologists in the first place. In the past, this typically involved groups of archaeologists from richer nations travelling to conduct projects in those less well off, sometimes with a colonial mindset. While the legacy of this arguably survives, times have changed. Today, most international projects are collaborative affairs, many individual archaeologists migrate from country to country seeking work, and commercial companies compete to win projects internationally. There are potential challenges and benefits associated with this. Philosophical and practical approaches to archaeology vary and it can be difficult to adapt; however, the experience of working in multiple systems allows one to compare, contrast and ultimately evaluate. We welcome papers from institutions, commercial companies, and/or individuals who have experience of working in or collaborating with people from different counties and can speak to this. We intend to publish the session as a monograph and ask that speakers prepare their submissions with this in mind.

CONTRIBUTION ABSTRACTS

289. ETHICS, STANDARDS AND GUIDANCE — FRAMEWORKS FOR INTERNATIONAL COLLABORATION

Contribution format: Oral  
Contribution authors: Paul Belford (Heritage Innovation)

The professionalisation of archaeology and cultural heritage work has increased during the last 50 years, alongside the emergence of international frameworks seeking to manage the various (and sometimes contradictory) strands of ‘sustainable development’. Many of these do not directly stem from, or relate to, heritage; however they have had an impact on the way that archaeology and cultural heritage is considered, protected and managed. International treaties, international financial standards, and procurement practices by international bodies (such as the EU and UN), have been influential in improving practical approaches to archaeological heritage management, by setting standards and guidance for large-scale projects. The work of professional associations such as CIfA and RPA has also begun to help create ethical frameworks for heritage management. However, whilst

large-scale internationally-funded infrastructure projects generally work to international standards, the picture is much more complex at national and regional levels. There are challenges in implementation where heritage management structures are not well established, or are vulnerable to political and other pressures. This paper will draw on recent experience in the Balkans to explore some of the issues and tensions around the implementation of professional standards and guidance, particularly where independent regulation is weak and ethical challenges are strong.

1232. EXPLORING THE ALIGNMENT OF PROFESSIONAL STANDARDS AND GUIDANCE TO SUPPORT UNIVERSAL ARCHAEOLOGICAL PRACTICE: CHALLENGES, OPPORTUNITIES....AND ADVENTURES

Contribution format: Oral  
Contribution authors: Jen Parker Wooding (Chartered Institute for Archaeologists)

The outcomes of archaeology are universal - the wealth of knowledge extracted from archaeological activities and research the world over has provided (and continues to do so) a vast history of the world we inhabit and of the civilisations that preceded us. However, the actual practice of archaeology is not universal; legislative frameworks, policy and approaches differ across jurisdictions, and for a profession operating internationally that can pose challenges, as well as opportunities for knowledge exchange and collaboration. This presentation explores the challenges and opportunities associated with aligning jurisdiction-specific guidance with universal professional standards to support consistency in practice wherever archaeologists are working. A collaborative project commissioned by the Department for Communities, Historic Environment Division is presented. This project reviewed the applicability of professional standard and guidance documentation (produced by the Chartered Institute for Archaeologists (CIfA) and the Institute of Archaeologists of Ireland) to archaeological guidance in Northern Ireland addressing recommendations published in Archaeology 2030. A Strategic Approach for Northern Ireland. The aim being to support the archaeological profession in Northern Ireland to consistently deliver archaeological activities to recognised professional standards. This project provided a valuable opportunity to explore one approach to guidance alignment that could potentially be adopted elsewhere. CIfA is the leading professional body for archaeologists in the UK and overseas, with members based across the world routinely working on international projects. CIfA has developed a range of Regulations, Standards and guidance to ensure that CIfA members work to high ethical and professional standards. This documentation collectively provides a regulatory framework which the Institute is currently updating for wider universal application. Providing professional standards and guidance that are applicable wherever archaeologists work is a key strategic objective for the Institute to maximise the benefits that archaeologists bring to society.

534. FROM THE ALPS TO THE PELOPONNESE, FROM UNIVERSITIES TO PRIVATE CONTRACTORS: A RANGE OF ARCHAEOLOGICAL OPPORTUNITIES

Contribution format: Oral  
Contribution authors: Veronica Testolini (Independent | Associazione Nazionale Archeologi (ANA)) – Regina Klöckl-Zorić – Elisabeth Trinkl (University of Graz)

This paper presents a Greek-Austrian collaboration, showcasing how an academic project can be successfully implemented through cooperation across multiple systems, including academia, private contractors, and public and private institutions from different countries. The project 6,500 Years of Solitude? Investigating Pottery from Pheneos, is led by the University of Graz and funded by the Austrian Science Funds (FWF), exemplifying how national funding schemes can foster international and interdisciplinary collaborations. Similar organisations, such as The British Academy, the Deutsche Forschungsgemeinschaft, and El Consejo Superior de Investigaciones Científicas, also play pivotal roles in supporting global archaeological research. While these institutions primarily advance their national research and innovation agendas, they also provide opportunities to develop archaeological research that extends beyond borders and colonial practices. The implementation of this project was based on a close collaboration between the University of Graz, Austria, and the Greek Ephoreia at Corinth. British, Austrian, Greek, and Italian private contractors, as well as public institutions, were also involved. Greek legislation strictly regulates the movement of archaeological artefacts outside of Greece. Consequently, the study of the Pheneos ceramic assemblage took place at both the excavation site and the museum depot in the Peloponnese, as well as in Athens at the INN Demokritos. Travel to Greece was essential, fostering productive exchanges but also presenting challenges, particularly in organisational terms. Mobility and effective planning of fieldwork was crucial to maximise efficiency, minimise disruption and optimise the limited time on-site. This paper examines the value of involving specialised collaborators in such projects, emphasising the advantages of working with private contractors. Additionally, it highlights the benefits of transnational synergies and addresses the challenges of working outside national borders. We will discuss how collaboration between nationalities enriched the research, while also reflecting on the impact of the project on the nearby local communities.



919. BEYOND LIMITS: WHAT HAPPENS WHEN ARCHAEOLOGY TRANSCENDS BORDERS? – REMARKS ON THE IMPACT OF INTERNATIONAL COLLABORATION IN ARCHAEOLOGY

Contribution format: Oral  
Contribution authors: Martyna Pacek (University of Wrocław)

International collaboration is critical in archaeology, encouraging various viewpoints and ground-breaking discoveries. Since the very beginning, archaeological research has been intrinsically international, with contributions from countries all over the world. The presentation highlights the importance of archaeologists collaborating beyond national borders, advocating for teamwork with a diverse array of researchers and organizations. The speaker has almost a decade of experience in working internationally, having written dissertations on diverse European cultures and collaborated with scholars from Europe and the United States. Author’s academic history includes a still ongoing work on PhD dissertation focused on the Mediterranean area and work on another PhD thesis that examines global artifact repatriation, highlighting the advantages of scholarly collaboration across borders. Archaeologists, as intermediaries conveying messages from the past, must remain open-minded and flexible – almost like generalists in the world of very narrow specialists – to accurately capture the long-lost worlds. The type of collaboration discussed necessitates a thorough reassessment of current methodologies and foundational questions within the discipline. The interdisciplinary aspect of archaeology, which includes academic, public, private, and voluntary sectors, provides distinct opportunities for partnership. Nevertheless, engaging in cross-national and cross-cultural projects introduces distinct challenges. Archaeologists are required to maneuver through varying regulatory frameworks, ethical considerations, and logistical obstacles, all of which can influence the execution and results of their work. Communication and collaboration may be hindered by language barriers and cultural disparities, potentially resulting in misunderstandings. Furthermore, the blend of diverse research methods and approaches necessitates a high degree of adaptability among team members. The need to reconcile the interests of local communities with scientific goals adds another layer of complexity since archaeologists should aim at honoring and integrating indigenous knowledge and perspectives into their work.

1162. FROM SMALL REGIONAL COMPANY TO TRANS-REGIONAL PARTNER – THE OPPORTUNITIES AND CHALLENGES OF INTERNATIONAL COOPERATION AT INFRA EUROPE JV

Contribution format: Oral  
Contribution authors: Sarah Wolff (ADW Archäologische Dienstleistungen Wolff | infra europe jv)

Germany’s commercial archaeology is characterised by many small companies that divide up individual regions or districts among themselves. Due to the different excavation guidelines of the federal states, they usually do not go beyond the borders of their federal state. Large-scale linear infrastructure projects, such as those currently underway in Germany, push this mosaic system to its limits – and illustrate the need for collaboration on a larger scale. Infra europe jv has brought together five companies of different sizes and from different countries to take on this challenge. International experience in large infrastructure projects and an internationally diverse team met with regional excavation companies, of which ADW is the smallest. This lecture highlights from the perspective of the smallest partner in the jv how work changes when you go from being a small regional company to a partner in a large-scale project. And how archaeologists from all over the world join forces to achieve great things together and thereby become freidns.

145. EXPLORING THE WORLD THROUGH ARCHAEOLOGY: NAVIGATING MOBILITY, IDENTITY, AND PASSION

Contribution format: Oral  
Contribution authors: Ivana Mirkovic (IMT School for Advanced Studies)

Becoming an archaeologist often begins with a profound curiosity about the human past and a passion for uncovering stories of ancient civilisations. However, the path to this profession is rarely easy, particularly in the context of international work. It demands constant adaptability to new institutions, methodologies, and cultures. Drawing on my experiences studying at nine universities across six countries, I explore how constant mobility has shaped my understanding of archaeology and my professional identity. This journey prompts reflection on key questions: Why do archaeologists travel? What are the benefits of international collaboration, and what challenges arise along the way. By sharing insights from my studies and collaborations in Bosnia and Herzegovina, Serbia, Italy, Portugal, France, Spain, and the Netherlands, I illustrate how international engagement enriches not only our knowledge of the past but also our ability to bridge various subfields of archaeology, ensuring its continuity in a world of constant transformation. This paper explores the broader implications of mobility in archaeology: the personal and professional growth it fosters, the obstacles it presents, and the ways it prepares archaeologists to contribute meaningfully to social and technological phenomena.

1550. ARCHAEOLOGICAL ADVENTURES AND ADMINISTRATIVE ADVERSITY: A CASE STUDY OF IRELAND’S IMMIGRATION SYSTEM AND INTERNATIONAL ARCHAEOLOGICAL EDUCATION

Contribution format: Oral  
Contribution authors: Brigid Melloy (Institute of Archaeologists of Ireland | Archaeological Management Solutions)

The globalisation of archaeological education and practice presents both opportunities and challenges for emerging professionals. This paper examines the complex intersection of international archaeological education and immigration policy through the lens of Ireland’s higher education system and archaeological sector. While Ireland actively recruits international students, seeing a 15% increase in non-EU enrolments in 2024, significant barriers prevent these graduates from contributing their expertise to Irish archaeology post-graduation. Despite the growing demands of Ireland’s archaeological sector and the country’s stated aims to become a global leader in education and innovation, the current immigration framework creates substantial obstacles for international graduates seeking to work in Irish archaeology. Drawing on personal experience as an American archaeologist navigating the Irish education and immigration systems, this paper explores the disconnect between Ireland’s desire to attract international students and its restrictive work permit policies. The research highlights how current immigration policies may perpetuate historical inequalities in archaeological practice, albeit in new forms - while students from wealthy nations can afford expensive international tuition fees, post-graduation barriers often prevent them from fully participating in the field they studied. This case study provides insights into the broader challenges of archaeological mobility in the 21st century and raises important questions about access, equity, and the future of transnational archaeological practice. The presentation will contribute to wider discussions about the benefits and challenges of archaeological work across different systems, examining how immigration policies shape opportunities for international collaboration and knowledge exchange in contemporary archaeology.

1218. WHAT DOES “WORKING ABROAD” MEAN TO YOU?

Contribution format: Oral  
Contribution authors: Brigitte Buss (Jacobs | CIfA)

To work in another country as a professional archaeologist in the commercial sector, a relevant degree or similar qualification is usually the first step to landing a job, a good understanding of the prevailing culture(s) and language(s) is generally useful, sometimes mandatory. Some employers may require membership level of an accredited professional institute and, depending on the job in question, mobilizing for fieldwork may also mean passing additional stipulations by regulating authorities. Few would question that professional qualifications are important to ensure that cultural heritage is protected or taken care of responsibly and to the highest professional standards. These may differ from country to country, as may well the type of archaeology encountered. Within Europe, the need to link to qualifications with specific geographic territories is, perhaps, predominantly administrative and legal in accordance with geopolitical divisions. Beyond this, regulatory requirements reflect a specific understanding of what good archaeological practice looks like within that realm. The link of geographies with requirements and its juxtaposition with an applicant’s professional qualifications and cultural identity can, however, reach near absurd levels. In federalist Germany, for example, regulations are applied at the federal state (Bundesland) level. Therefore “working abroad” may simply mean up the road across an otherwise invisible border, and a need to prove your qualifications beyond it, even within one nation. Working abroad is generally understood to mean outside your country of origin/residence, but in our multicultural and mobile world constellations are more complex. So, what does “working abroad” mean to you? This paper is intended a think piece with the aim to stimulate a discussion about modern professional identities and mobility.

2092. CAN WE TALK ABOUT INTERNATIONALIZATION IN ARCHAEOLOGY?

Contribution format: Oral  
Contribution authors: Marcella Giorgio (Associazione Nazionale Archeologi)

In economic terms, internationalization is the adaptation of an element (a commodity, a company) for potential use outside the market or environment in which the element operates, i.e. in other markets or nations. Applying this concept to archaeology, we can think of a company or a professional who operates in different countries not sporadically (e.g. one research excavation campaign per year) but as a normal professional practice, that is, having different partnerships and collaborations as a daily work area. This requires a knowledge of foreign regulations that allows one to apply one’s professional activity indifferently in different contexts. In a European system where there are no real borders and there is a tendency towards an increasingly shared economic and professional mobility system, the question therefore arises spontaneously: can we talk about internationalization in archaeology? Are professional archaeologists and archaeological companies ready to build professional networks in these terms? Does university and post-university training allow one to be ready to operate in a system



of this kind? Do the particularities and differences of the legislations of the various States represent a difficulty in the transactional mobility of archaeologists? Is the working methodology applied by European archaeologists a common basis for a shared dialogue or an element of dissimilarity? The intervention aims to try to answer the above questions and identify the critical and positive aspects inherent in the development of internationalization in archaeology.

76 UNTANGLING HEALTH AND DISEASE STATUS FROM A MULTIDISCIPLINARY BIOARCHAEOLOGICAL PERSPECTIVE IN EUROPEAN MEGALITHIC POPULATIONS (4TH-3RD MILLENNIA BC)

Session theme: 5. Finding the way! Archaeological sciences and opening new research perspectives  
Session format: Regular session  
Session keywords: Megalithism, Late European Prehistory, Macro and micronarratives, Pathologies, Human health  
Session organisers: Miriam Vílchez Suárez (Universidad de Granada) – Ramón López-Gijón (Universidade de Évora) – Sonia Díaz Navarro (Universidad de Burgos) – Marta Díaz-Zorita Bonilla (University of Tübingen)

SESSION ABSTRACT

Megalithism is one of the most important cultural phenomena in human history. This phenomenon, present on a worldwide scale, is characterised by the diversity and complexity of the monuments and the funerary practices. Despite the advances in the study of megalithic populations, information on their health and disease status remains poorly understood due to the limitations of these collective contexts where human remains are found commingled and deficiently preserved. Megalithic communities offer valuable insights into the health of ancient populations. Aspects such as diet, environmental changes, social structure, and diseases, played significant roles in shaping the health of these populations. It is expected that these individuals would have experienced specific health conditions reflective of their agrarian lifestyle, such as malnutrition, dietary deficiencies, degenerative joint diseases, oral pathologies or those associated with animal domestication. Furthermore, the physical demands of constructing large megalithic structures likely contributed to musculoskeletal stress markers and trauma. A detailed bioarchaeological analysis can reveal patterns of life, physiological stress related to poor and deficient diets, pathologies acquired during life, interpersonal violence, deficient hygiene levels and even medical (surgery) and care practices. In addition, stable isotopes or paleogenomics analyses complement osteological studies by linking health indicators to the geographical origin, dietary and mobility patterns, kinship, endogamy and pathogens. Untangling health status from a bioarchaeological perspective is essential for reconstructing their living conditions and understanding how these factors impacted their quality of life. The goal of this session is to bring together researchers for an update on their latest findings of health and disease of European megalithic populations (4th-3rd millennia BC) utilizing multidisciplinary approaches from bioarchaeology (e.g., palaeopathology, paleoparasitology, dental health, paleogenetic, isotope analysis, etc.). We encourage the presentation of general and case studies as well as new methodologies and strategies to establish guidelines for their identification and interpretation.

CONTRIBUTION ABSTRACTS

1365. GUIDELINES FOR PALEOPARASITOLOGICAL SAMPLING IN MULTIPLE BURIAL CONTEXTS

Contribution format: Oral  
Contribution authors: Ramón Gijón (Universidade de Évora | Universidad de Granada) – Miriam Suárez (Universidad de Granada)

The finding of parasites from archaeological contexts (discipline known as Paleoparasitology) allows us a bioarchaeological approach to the study of past populations. In particular, by finding parasite dispersal phases, we can learn about the socio-economic and hygienic-sanitary conditions of the human hosts. Although parasites can be studied in any material susceptible to preserve human fecal remains (cesspools, latrines, sewage pipes, etc.), the study of parasites present in sediment associated with human skeletal remains allows us a more accurate approach to their living conditions. Based on this type of studies, we can individualize parasitosis in order to approach the prevalence according to age and sex ranges, as well as perform multidisciplinary studies in which the presence of parasites is compared with bone pathologies and diets, among others. However, given the lack of soft tissue in these archaeological contexts, sampling is essential to be able to demonstrate the presence of parasites, thus avoiding false negatives. In the present contribution, we propose a methodology focused on the collection of paleoparasitological samples in sediment from human skeletal remains in multiple burials,

addressing the different cases that we can find and how to proceed in each of them.

2420. NEW APPROACHES TO NUTRITION, HEALTH AND INEQUALITY IN MEGALITHIC TOMBS OF DUERO BASIN (CENTRAL IBERIA) DURING THE 4TH MILLENNIUM BC

Contribution format: Oral  
Contribution authors: Cristina Tejedor Rodriguez – Ana Lorenzo-Barrio (University of Valladolid) – Sonia Díaz-Navarro – Rebeca García-González (University of Burgos) – Teresa Fernández-Crespo (University of Valladolid)

Megalithic tombs, especially the most monumental ones, have been and still are usually interpreted as ‘ancestors houses’, symbols of social cohesion, where all the members of the group would share the same burial space, losing their individuality and becoming part of the ‘social body’. However, several evidences have led these ideas to be called into question, such as the presence of a low number of individuals that does not fit well with what would be expected from the long-term funerary use of these sites, or the identification of the unnatural sex and age imbalances, generally favouring male adults. As a result, these megalithic tombs have been reinterpreted as ‘tombs of selected people’. Within this context, it is timely to re-evaluate megalithic collective burials, through new research questions and innovative perspectives. The Duero basin (central Iberia) stands as a key area of study for these new approaches, since this region has a well-defined geographical framework and a high density and diversity of megalithic monuments, including well preserved ossuaries. This oral communication, which is framed within the AGENDER project (‘Politics of death and diachrony of inequality in the megalithic tombs of the Douro Valley during the 4th millennium BC’), aims to reconstruct the dietary patterns of the individuals buried in megalithic tombs of the region as a means to approach health and disease experiences and social relationships of these populations. For this purpose, different complementary methodologies are applied, the combination of which represents an innovative strategy that not only offers a more accurate understanding of diet, but also of health, care and survival strategies. This work contributes to a better understanding of the living conditions, inequality, and diachronic variability of the communities burying their dead in megalithic tombs of the Duero basin during the 4th millennium BC.

1793. BIOARCHAEOLOGICAL ANALYSIS OF A LATE NEOLITHIC STONE CIST FROM DENMARK: HEALTH, DIET, AND SOCIAL STRUCTURE

Contribution format: Oral  
Contribution authors: Rikke Petersen (ADBOU: Unit of Anthropology Department of Forensic Medicine, University of Southern Denmark)

In 2019, a remarkable stone cist (hellekiste) was excavated on the island of Langeland, Denmark, dated to the Late Neolithic period (2400-1800 BC). As part of a master’s thesis project, osteological analysis was conducted on the remains of nine individuals buried in this late Neolithic grave. Despite the fragmented and commingled nature of the remains, the individuals represent a diverse demographic, including both sexes and various age groups, offering rare insights into the health conditions of megalithic populations in Europe. The paleopathological analysis revealed signs of nutritional stress, dental disease, and healed fractures, pointing to the physical strain of an agrarian lifestyle and potential interpersonal violence or accidents. These health indicators, found in both children and adults, suggest shared environmental and social stressors within the community. Evidence of healed injuries implies the existence of care practices, reflecting social responsibility and community cohesion. This research, employing bioarchaeological methodologies, provides valuable insights into the lived experiences of those buried in the hellekiste. It further illuminates how health, social roles, and identities were shaped by environmental and social factors. Isotopic analysis has further enriched the understanding of the diet for the buried individuals. While the exact span of usage for the hellekiste remains a subject of debate, with C14-dating still pending, the study still contributes to understanding the health challenges faced by megalithic populations during the 4th–3rd millennia BC and the interplay between health, social structure, and burial practices in Neolithic societies.

1880. ISLAND LIVES IN THE BONES: HEALTH AND ACTIVITY PATTERNS AMONG DOLMENIC COMMUNITIES FROM THE BALEARIC ISLANDS (3RD-2ND MILLENNIA BC)

Contribution format: Oral  
Contribution authors: Ángela Orosa-Queijo (Institute of Heritage Sciences (INCIPIT-CSIC)) – Edgard Camarós (University of Santiago de Compostela) – Pau Sureda (Institute of Heritage Sciences (INCIPIT-CSIC))

The megalithic phenomenon has been identified in the Balearic Islands from the end phase of the 3rd millennium BC and along the 2nd millennium BC through a wide variety of monuments and funerary practices. In this context, dolmens are the oldest and most representative structures of this phenomenon on the archipelago, being also linked to the first stable settlers of the islands. How does this first settlement affected prehistoric communities in



their biological anthropology? According to several authors, early island settlement is a harsh process with physiological costs reflecting life conditions evidenced among the skeletal assemblages through stress markers and a high frequency of skeletal pathologies. In this paper, we evaluate the health and lifestyle of the individuals buried in the Balearic dolmens with the aim of exploring the costs, influence and adaptations of living in an island. To do so, we analyse human skeletal remains macroscopically from key Balearic sites, in search of pathologies and skeletal markers of stress and adaptative processes. Additionally, taphonomic modifications are isolated within poor preserved and fragmented assemblages aiming to overcome pseudo-pathologies (ie., post-depositional changes affecting our identification of pathologies). Preliminary results of our research indicate physiological stress and specific skeletal markers as a potential response to island adaptation. Observation of a high incidence of enthesal changes, particularly present on the phalanges and femurs, and other stress markers may provide insights into daily activities. In addition, oral pathologies such as dental infection, extreme dental wear, and antemortem tooth loss, and degenerative diseases (eg. Osteoarthritis) provide further evidence of the health status of these prehistoric populations to an island context.

**142. HUMAN MOBILITY AND SUBSISTENCE PATTERNS FROM THE CHALCOLITHIC TO THE IRON AGE IN BEJA (SOUTHERN PORTUGAL)**

**Contribution format:** Oral  
**Contribution authors:** Linda Melo (Research Center in Anthropology and Health (CIAS). University of Coimbra | Center of Archaeology (UNIARQ). School of Arts and Humanities. University of Lisbon) – Marta Díaz-Zorita Bonilla (Institut für Ur und Frühgeschichte und Archäologie des Mittelalters. Universität Tübingen)

Isotopic analyses of human hard tissues (bones/teeth) are well established in Anthropology and Archaeology as a reliable way of reconstructing and interpreting both subsistence and mobility patterns of past communities. This study was based on an interdisciplinary methodological approach that combines anthropological, archaeological and biochemical data on human individuals from the Chalcolithic period to the 1st Iron Age from the Beja region (southern of Portugal).. A total of 14 archaeological sites were analysed from which 300 individuals were studied in detail. Regarding isotopic analysis, 156 samples were collected: 72 samples of human bone and 10 of fauna to investigate diet ( $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$ ), and 72 samples of tooth enamel and 2 of fauna to explore mobility ( $^{87}\text{Sr}/^{86}\text{Sr}$ ,  $\delta^{18}\text{O}$ ). The study aimed to document funerary practices in detail and to identify differentiation within the burial space arrangements, to characterise the diet of individuals and to understand differentiated access to food, but also to explore mobility patterns of these human communities. This diachronic approach allowed us to contribute to the characterisation of the life and death of these human populations that lived in a specific geographical area over a period of approximately 2500 years.

**1395. NEW APPROACHES TO THE ANALYSIS OF INFECTIOUS PROCESSES. CT AND SEM IN A MAXILLA FROM THE DOLMEN OF EL PENDÓN**

**Contribution format:** Poster  
**Contribution authors:** Sonia Díaz-Navarro – Nico Ciotto (Laboratorio de Evolución Humana, Universidad de Burgos) – Cristina Tejedor-Rodríguez – Manuel Rojo Guerra (Universidad de Valladolid) – Rebeca García-González (Laboratorio de Evolución Humana, Universidad de Burgos)

This paper presents a case study focused on an individual recovered from El Pendón site (Burgos, NW Spain), a megalithic monument used as a burial place for a hundred individuals during the 4th millennium BC. Specifically, a maxilla (EP-4551) belonging to a middle-aged male individual has been analysed. It exhibits severe oblique dental wear with chipping of the enamel, as well as calculus deposits in the labial and interproximal region of the posterior teeth. The most relevant aspect is the presence of a large abscess due to a periapical cyst on the upper left second molar (10.1 mm long by 7.2 mm wide). The lesion shows rounded edges without macroscopic traces of bone resorption and inside the alveolus there is a rounded orifice of 4.73 mm in diameter that connects with the maxillary sinus. The methodology consisted of multi-slice CT and bone remodelling maps with SEM from high resolution replicas. The CT scan clearly showed the external opening of a drainage channel because of a fistulation process and direct communication of the abscess with the maxillary sinus, causing sinusitis. SEM mapping allowed the detection of resorption in the affected area, suggesting that bone remodelling is acting to repair the damage of the infection. The use of this non-destructive methodology has made it possible to safely diagnose the pathology, analyse the extent of the infectious process, reconstruct how the destruction of the bone tissue occurred and determine whether the individual survived, as well as the estimated healing time.

**2183. MOBILITY AND HEALTH STATUS IN MEGALITHIC COMMUNITIES: A CASE STUDY FROM THE NECROPOLIS OF PANORIA**

**Contribution format:** Poster  
**Contribution authors:** Paula Becerra Fuelle (Department of Prehistory and Archaeology, University of Granada) – Javier Lescure Rodríguez (Dpto. de Biodiversidad, Ecología y Evolución, Universidad Complutense de Madrid) – Gonzalo Aranda Jiménez – Miriam Vilchez Suárez (Department of Prehistory and Archaeology, University of Granada) – Marta Díaz-Zorita Bonilla – Dobereiner Chala-Aldana (Tübingen University) – Marcos Marrero Santana (University of Granada)

This poster is part of the MigrAnt project at the University of Granada: Migrations in Social and Physical Anthropology in the Iberian Peninsula. The project aims to assess how mobility affects migrants today while also exploring parallels with prehistoric populations. Beyond the economic, personal, or social benefits that migration processes may have had for the migrant, the consequences often include stressful situations such as loss of identity, inequality, discrimination, xenophobia, or exile. Additionally, physiological stress can manifest through exposure to new pathogens, childhood health problems, or enthesal changes caused by long-distance walking. Moreover, migration leaves a direct isotopic imprint on the human skeleton through the consumption of local water and food, reflected in strontium isotopic values, among other isotopes. The Late Neolithic and Chalcolithic periods were characterized by the arrival of new populations, highly mobile societies, and strong exchange networks. As part of this study, we assess the proportion of migrant (non-local) individuals through isotopic analyses and examine their health status in relation to their potential exogenous origins. Preliminary data suggest that the proportion of non-local individuals in southeastern Iberia is relatively small. However, there is some observed association between individuals with non-local Strontium (Sr) isotope values and specific pathological conditions, particularly cranial pathologies. Through this poster, we analyze the relationship between non-local individuals and their health status during the 4th and 3rd millennium BC in the megalithic cemetery of Panoria (Granada, Spain).

**2284. HEALTH TRENDS THROUGH PHYSIOLOGICAL STRESS INDICATORS IN PORTUGUESE LATE NEOLITHIC MEGALITHIC POPULATIONS**

**Contribution format:** Poster  
**Contribution authors:** Dulce Neves (Research Centre for Anthropology and Health (CIAS), University of Coimbra | Department of History, Anthropology, Religions, and Performing Arts, Sapienza University of Rome) – Álvaro Calleja – Francisco Curate (Research Centre for Anthropology and Health (CIAS), University of Coimbra) – Ana Maria Silva (Research Centre for Anthropology and Health (CIAS), University of Coimbra | UNIARQ – University of Lisbon | Centre for Functional Ecology (CFE), University of Coimbra)

In Portugal, human remains from Late Neolithic Megalithic tombs are commonly unearthed. These populations are mainly found in collective burials, where intense manipulations of the human skeletons result in a mass of highly fragmented commingled bones, with little or no absence of anatomic connections. Henceforth, disarticulation, poor preservation, and incompleteness pose major challenges to the study of these collections. Despite these limitations, the meticulous analysis of these assemblages can contribute to the knowledge of the health and lifestyles of these individuals. To get insights and document long-term health trends of these communities, two physiological stress indicators, cribra orbitalia (CO) and linear enamel hypoplasia (LEH) were collected for Cova das Lapas (Alcobaça) and Dolmen de Ansião (Coimbra). LEH were scored in very low frequency in both collections. CO was found in 36.4% (4/11) of the non-adults and 21.0% of the adults (5/24) of Cova das Lapas, with major severity in the former group. Among the adults, all observed lesions were remodeled with one exception. CO was not detected in the Dolmen de Ansião sample. Further, possible co-occurrence with endocranial signs of infections were explored and investigated, prompted by the high frequency of this latter pathology in Cova das Lapas.

**2416. HEALTH AND LIFESTYLE IN PREHISTORIC CENTRE-NORTHERN AND NORTHERN PORTUGAL: THE ANCNORTH PROJECT**

**Contribution format:** Poster  
**Contribution authors:** Ana Bettencourt (Landscape, Heritage and Territory Laboratory (Lab2PT), Department of History, University of Braga | Research and Innovation in Heritage, Arts, Sustainability and Territory (In2Past)) – Ana Silva (Research Centre for Anthropology and Health, Department of Life Sciences, 2University of Coimbra | UNIARQ – University of Lisbon. Centre for Functional Ecology, Department of Life Sciences, University of Coimbra) – Aurora Grandal D’Anlade (Instituto Universitario de Xeoloxía, University of A Coruña)



– Pedro Fernandes (Centre of Molecular and Environmental Biology (CBMA), School of Sciences, University of Minho | Institute of Science and Innovation for Bio-Sustainability (IB-S), University of Minho) – Pedro Soares (Centre of Molecular and Environmental Biology (CBMA), School of Sciences, University of Minho | Institute of Science and Innovation for Bio-Sustainability (IB-S), University of Minho)

In the centre-northern and northern of Portugal, unlike in other parts of the country, human remains dating from the Late Prehistory are rare and highly fragmented due to the acidity of the soil. It was in this scope that the “Fine-scale study of ancestry, mobility and diet in the Copper Age-Bronze Age transition in northern Portugal”, FCT project (Ref. PTDC/HAR-ARQ/3286/2021) was proposed, involving geneticists, archaeologists, anthropologists and paleontologists from different universities, research units and countries. Through an interdisciplinary approach, this team intend to document data on the demography, pathology, ancestry, mobility and diet of the few human remains recovered in this region, from the Neolithic to the Bronze Age. These results will be compared with similar ones obtained for populations in the centre and south of the Iberian Peninsula. Here we present the first palaeopathological data, cross-referenced with isotopic and ancient DNA results, which have provided information on the health and lifestyle of the populations under study.

77 FROM FIRE TO COMPLEXITY: KILN INNOVATIONS AND SOCIOECONOMIC DYNAMICS IN POTTERY PRODUCTION

Session theme: 1. On artefacts and beyond  
Session format: Regular session  
Session keywords: kilns, pottery production, technological innovation, craft specialization, pottery firing, social complexity  
Session organisers: Andreea Terna (Kiel University) – Felix-Adrian Tencariu (Al. I. Cuza University of Iasi) – Núria Miró Alaix (Museu d’Història de Barcelona) – Zsolt Vágner (PPKE, Hungary) – Anna Bach Gomez (Universitat Autònoma Barcelona)

SESSION ABSTRACT

The adoption and development of ceramic production technologies, particularly the use of kilns, have profoundly shaped prehistoric and historical societies. The introduction of kilns marked a transformative technological innovation, enabling better control over the firing process, improved pottery quality, and increased production efficiency. This innovation fostered craft specialization, economic interconnectivity, and new approaches to resource management. Despite these advantages, kiln technology adoption varied, with some communities retaining traditional open or pit firing methods. This session explores the dynamics of ceramic production areas in archaeological contexts, emphasizing technological, socio-economic, and environmental factors driving these changes. By examining kiln structures, workshop layouts, raw material procurement, and waste disposal patterns, as well as regional and chronological variations across Eurasia, the Mediterranean, and Europe, we aim to uncover patterns in the development of pottery production. Key questions include: What factors influenced the adoption of kiln technology in some societies while others maintained traditional methods? How did kiln innovations impact product quality, output, and trade networks? What role did technological and environmental constraints play in shaping production practices? We also investigate how ceramic production sites reflect broader societal dynamics, including urbanization, trade, and political shifts, with localized adaptations highlighting responses to resource availability and labour dynamics. Through interdisciplinary approaches—including geochemical analysis, spatial analysis, ethnographic comparison, and experimental archaeology—we seek to provide a comprehensive understanding of the interplay between technology, society, and craft knowledge in ceramic production from prehistory to present.

CONTRIBUTION ABSTRACTS

1614. EXPLORING TECHNOLOGICAL DIVERSITY IN HALAF CERAMICS DURING THE 7TH-6TH MILLENNIUM SHIFT IN UPPER MESOPOTAMIA

Contribution format: Oral  
Contribution authors: Anna Bach Gómez – Ana Sanmiguel De La Fuente – Lara Marín González – Eric Knibb (Universitat Autònoma de Barcelona)

The Halaf culture (c. 6100–5300 BCE) is renowned for its sophisticated ceramic production, which exhibits remarkable technological diversity across different regions of northern Mesopotamia. The sites along the Middle Euphrates, Khabur, and Tigris provide valuable insights into variations in raw material selection, manufacturing

techniques, and firing processes, reflecting both localized adaptations and broader cultural interactions. Although there is little evidence of production areas, it can be inferred from indirect evidence. In this context two hypotheses have been predominant. On the one hand, considering female domestic work in a household production, and the presence of specialized workshops suggests a centralized production system, possibly linked to long-distance trade networks. This contribution will work on demonstrate that Halaf ceramic production was not monolithic but rather adapted to regional conditions while maintaining a cohesive cultural identity. The technological diversity observed in these three regions underscores the complexity of Neolithic communities in Mesopotamia and their ability to innovate and interact within broader exchange networks. Understanding these variations provides critical insights into the economic and social organization of the Halaf culture.

204. LEARNING FIRE: SENSORY PERCEPTIONS AND PYROTECHNICAL CHOICES IN CHALCOLITHIC POTTERY PRODUCTION OF SOUTHWESTERN ASIA

Contribution format: Oral  
Contribution authors: Claire Padovani – Johnny Baldi (CNRS Archéorient)

In Southwestern Asia, the first kilns are adopted during the second half of the 7th – beginning of the 6th millennium BCE in different socio-economic, chrono-cultural and environmental contexts. The kiln is a particularly designed firing structure characterised by the separation of the combustion chamber, where heat is generated, from the firing chamber, where this heat is transferred to the clay material to be fired. In the archaeological literature, kilns are often – and wrongly – considered as more efficient firing structures due to their ability to reach higher temperatures, create and maintain a consistent atmosphere. Despite their supposed technical superiority, other types of firing structures continue to be used alongside them. It suggests that the use of the kiln is motivated predominantly by traditions, personal beliefs, social structures and cultural exchanges, rather than by a pursuit of performance. Operating a specific design requires a long apprenticeship of a specific set of gestures associated with that design, which is not easily transferable to other designs. Firing techniques are learned empirically, through demonstration and sensory signals, rather than through strict theoretical instructions. During firing, sensory signals directly influence the decisions taken by the potter to manage the firing in order to obtain a particular ceramic result. Over the long term, these signals form a frame of reference which guides the technical choices that shape the development of pyrotechnology. This paper investigates the adoption of kilns in Southwest Asia by comparing the socio-economic and environmental contexts of kiln-using societies, alongside the technical and cognitive distinctions involved in managing fire within kilns compared to other firing structures. How is the fire perceived in each type of structure? And what differences does this imply for learning the technique and managing the firing process?

1957. KILN INNOVATIONS AND SOCIETAL CHANGE IN THE NORTH PONTIC REGION DURING THE 4TH MILLENNIUM BCE

Contribution format: Oral  
Contribution authors: Andreea Terna (Kiel University) – Felix-Adrian Tencariu (Al. I. Cuza University of Iasi)

At the turn of the 4th millennium BCE, the North Pontic forest-steppe region underwent profound societal transformations, leading to the emergence of large, highly structured settlements, considered by many, examples of early urbanism. Despite varying in size from 15 ha in the western area to 300 ha in the eastern area, the settlements follow a consistent planning concept, featuring concentric rings of houses arranged around a central open space. This period saw significant advancements in technology and subsistence strategies, including the development of animal traction and the widespread use of manuring to support agricultural productivity. It is in this context that the widespread adoption of pottery kilns occurred. Excavations in recent years have revealed a dominant kiln type—a dual-chamber design with channels—spread across this vast region and showing relatively low morphological variation. Additionally, there is evidence of experimentation with new kiln designs, which would later evolve into the grate-type kiln, a characteristic type of the second half of the 4th millennium BCE. By using excavation data and experimental archaeology, our paper discusses the efficiency of particular technological choices in the building and use of the two pottery kiln designs and their consequences for the production scale and resource and labor organization.

2301. CERAMICS AND THE CITY: THE EVOLUTION OF THE BARCELONA WORKSHOPS

Contribution format: Oral  
Contribution authors: Núria Miró Alaix – Emili Revilla Cubero (Museu d’Història de Barcelona)

The archaeological interventions carried out in the last 20 years in the city of Barcelona (Catalonia, Spain), have made it possible to document kilns and dumps from various pottery centres in the city. These actions have allowed the recovery of a large volume of material that has been the subject of study and research, from the Museum of History of Barcelona, through various projects. In addition to morphometric and characterization analyses,



archaeometric-based analytical studies have been carried out, both on objects used for consumption and on waste material from the exhumed kilns. The identification of the different workshops was based on the location of the kiln itself, as well as the production areas of the workshop. These results have made it possible to characterize local production in Barcelona from Roman times to the 19th century. This particularity allows us to study both the technological development and the production and consumption patterns taking place in the city over more than 2000 years of history. Today, the names of the trades are still preserved in the toponymy of the streets of Ciutat Vella, such as Tallers and Escudellers, recalling the ancient location of the areas of the production centres.

93. TECHNOLOGIES, TRADITIONS, AND PROVENANCE OF CHALCOLITHIC POTTERY: A CASE STUDY OF CUCUTENI CERAMICS IN EASTERN ROMANIA

**Contribution format:** Oral  
**Contribution authors:** Ana Drob – Viorica Vasilache – Andrei Asăndulesei – Felix Tencariu (“Alexandru Ioan Cuza” University of Iasi)

In this study is presented a model of interdisciplinary ceramic analysis and laboratory experiments that provides new data about Chalcolithic pottery. The analyzed ceramic fragments come from several quasi-contemporary Chalcolithic (Cucuteni B1 phase, cca. 3800-3500 B.C.) settlements in Eastern Romania (Iași County), like the eponymous site of Cucuteni culture, Stroești-Pietrărie, and Dumbrăvița-Tarlaua Iezer. For the pottery, interdisciplinary methods are used to obtain more information about raw materials and production technology, inclusions, finishes, firing temperatures, and functionality. In this regard, the research also focuses on the raw material, like different clay deposits nearby the settlements that could serve as possible sources for the chalcolithic communities. These samples are subjected to experimental testing and chemical investigations for a comparative study at an intra- and extra-site level. The methods used in the analysis are macroscopy (shape, color, wall thickness, firing type, and inclusions type, distribution, form, and sorting), optical microscopy (texture of the paste, surfaces, and inclusions details), SEM-EDX (elemental composition), and μFT-IR (chemical compounds). Through this study, we want to contribute to highlighting the role of interdisciplinary results that led to the identification of technological features and specific ceramic traditions in the Chalcolithic period in Eastern Romania for a cluster of settlements. Thus, the proposed research ultimately provides a comprehensive overview of the ceramic technologies employed by Cucuteni communities through a broader spectrum of approaches and investigative methods.

716. PXRF INVESTIGATIONS INTO THE PROCESS OF CHALCOLITHIC CUCUTENIAN POTTERY PRODUCTION. A CASE STUDY

**Contribution format:** Oral  
**Contribution authors:** George Bodi (The Institute of Interdisciplinary Research, “Alexandru Ioan Cuza” University of Iași | Institute of Archaeology, Romanian Academy, Iași Branch) – Radu Pîrnău (Center for Geographical Research, Romanian Academy, Iași Branch | The Institute of Interdisciplinary Research, “Alexandru Ioan Cuza” University of Iași)

Hoisești – La Pod is a chalcolithic settlement situated in NE Romania, in the floodplain of the Bahlui River, and it belongs to the phase A of Cucuteni Culture. The unusual positioning has made it the object of interdisciplinary investigations, which advanced pottery production as the main possible site function. The hypothesis was further strengthened by the multi-analytical characterization of nine pottery shards and four possible raw materials samples from the area – clays from the riverbed, from different stratigraphic positions. Our presentation is focused on two main research questions: it seeks to verify the current working hypothesis and to also assess the utility of pXRF investigations into Cucutenian pottery. To this end, 34 pottery samples were analysed using a Bruker Tracer S1 Titan 800 pXRF spectrometer. The chemical composition data were statistically processed using R software to identify potential grouping and variances. The results indicated the presence of two distinct clusters based on elemental composition, suggesting homogeneity of the raw materials but different preparation techniques of the clay. This study demonstrates the potential of pXRF for Cucutenian ceramic analyses and it sets the stage for future research, based on larger sample sets, and aimed at inter-site comparisons to build a comprehensive framework for understanding the Cucuteni ceramic production. This work was supported by a grant of the Ministry of Research, Innovation, and Digitization, CNCS-UEFISCDI, project number PN-IV-P1-PCE-2023-0040.

1962. FIRE ON HIGH. ARCHAEOMETRICAL APPROACHES TO QUALITY CONTROL AND FIRING EFFICIENCY IN THE PRODUCTION OF THE CUCUTENI POTTERY

**Contribution format:** Oral  
**Contribution authors:** Florica Matau (Arheoinvest Center, Alexandru Ioan Cuza University of Iasi)

The Cucuteni-Trypillia culture represents a key reference point for understanding the technological advancements of Old European civilisation. Spanning a long period, approximately 4525/4500-3350 cal BC, and covering a large area of over 350,000 km² in present-day Romania, Ukraine, and the Republic of Moldova, this culture provides a

wealth of ceramic material, such as painted pottery and female figurines. These artefacts allow us to appreciate the technological capabilities of Chalcolithic artisans. Each phase of the pottery chaîne opératoire offers valuable evidence of their technical skills and innovative potential. The development of advanced pyrotechnological techniques among Cucuteni artisans was notably marked by the introduction of complex up-draught kilns, among the first of their kind in temperate Europe. Several factors influence the pottery firing process, including maximum temperature, heating rate, soaking time, duration, and thermal homogeneity. Despite a historically limited presence in Cucuteni-Trypillia settlements, recent advancements in large-scale geophysical prospection and subsequent excavations have uncovered several dual-chambered, up-draught kiln structures. One particularly noteworthy firing installation was recently identified at the eponymous site of the Cucuteni culture (Tencariu et al., 2022). The existence of pottery firing kilns within a settlement not only indicates local production but also offers valuable insights into the quality control measures employed by the potters. This study aims to evaluate the firing parameters of a representative dataset of pottery samples collected from the recent excavations at the Cucuteni-Cetățuie site, using these findings as a proxy to determine firing efficiency. To gain a deeper understanding of the firing conditions, we will employ thin-section petrography and X-ray diffraction analysis. The results will be further used to explore the degree of standardization and variability in the output of a pottery workshop within a Cucuteni settlement. Acknowledgements: This work was supported by a grant from the Romanian Ministry of Education, CNCS-UEFISCDI, project number PN-IV-P1-PCE2023-0040.

1747. THE CERAMICS FROM THE A-B SETTLEMENT OF CUCUTENI - DÂMBUL MORII (IASI COUNTY, ROMANIA)

**Contribution format:** Oral  
**Contribution authors:** Radu Balaur („Alexandru Ioan Cuza” University of Iasi, Arheoinvest Center)

The adoption of specific ceramic firing techniques, painting techniques, and raw materials and a high standardization of forms and decorations reflect not only advanced technological knowledge but also a degree of craft specialization within Eneolithic communities. . In this study, we will analyze the ceramics discovered in the Cucuteni A-B settlement at Dâmbul Morii. The analysis will be carried out both at the macroscopic level (color, painting, applied surfaces and treatments, shape/type of vessel, type of firing, etc.) and microscopically (optical microscopy, SEM-EDX).The study allowed detailed analysis of the multitude of aspects specific to the technological process of Cucuteni pottery production, starting with a deep insight into the characteristics of the raw materials, identification of the minerals present in the ceramic bodies, the analysis of the pigments used for painting the pots, as well as a thorough analysis of the factors involved in the high quality of the ceramics. . At the social level, we do not exclude the possibility that a master potter, who possessed all the knowledge necessary for the production of ceramics, would have divided certain tasks in the production process at the community level. As an argument, in addition to standard vessels with standard shapes and decorations, other vessels have been discovered that differ from the typical precision to which the bearers of the Cucuteni culture have accustomed us, the so-called „school vessels”. . . We want to compare the situation at this site with other phase A-B settlements to have a more concrete picture of the ceramic production. Finally, we would like to answer some questions related to the production of ceramics. Was there a local production of ceramics at the settlement of Dâmbul Morii? Were there specialized craftsmen and apprentices?

107. REFINING THE POTTERY CRAFT IN THE EAST EUROPEAN ENEOLITHIC (CUCUTENI-TRYPILLIA CULTURE): ARCHAEOLOGICAL EVIDENCE, SOCIO-ECONOMIC IMPLICATIONS, AND EXPERIMENTAL TESTING

**Contribution format:** Poster  
**Contribution authors:** Maria-Cristina Ciobanu – Adina Amărieuței – Analisa Ariton – Elena-Camelia Pintilie (Alexandru Ioan Cuza Iași University)

The East European Chalcolithic civilization of Cucuteni-Trypillia, renowned for its sophisticated painted pottery, exemplifies the correlation between socio-economic and demographic transformations and technological innovations. This relationship is evident with the onset of the final phase, Cucuteni B (ca. 3800-3500 BCE). The introduction and improvement of bicameral kilns, along with advanced pottery modeling techniques, including rotating supports, marked significant transitions in craft production. These innovations, together with the standardization of ceramic vessels, reflect the need to streamline production in response to population growth. The rapid adoption of these innovations indicates efficient inter-community exchange networks. This paper connects archaeological discoveries with recent experiments. Discoveries in Romania, Moldova, and Ukraine, correlated with our experiments, reveal new perspectives on pottery techniques. The usefulness of a rotating device in modeling large vessels has been demonstrated. Experiments on painting techniques validated recipes for the preparation of mineral pigments and slip, clarifying the role of polishing. Furthermore, experimental constructions of pottery kilns highlighted their evolution and improvement. Their use has demonstrated the efficiency of bicameral kilns and the relevance of technological innovations. The concern of prehistoric potters for innovation and



efficiency, quality and aesthetics demonstrates a deep understanding of materials and a constant desire to improve techniques, reflecting a complex society in which pottery played an essential role. These innovations reflect a dynamic society undergoing rapid expansion. Continuously refined, the craft of pottery responded to the needs of the community, contributing to its cultural identity.

79    WORLDS OF SENSATION: THE HUMAN BODY, THE SENSES AND NEUROSCIENCE

**Session theme:** 2. Intertwined Epistemologies: Transcending the Data – Theory Divide  
**Session format:** Regular session  
**Session keywords:** Sensory Archaeology, Cognitive Archaeology, Material Culture, Landscape, Human body, Performance  
**Session organisers:** Susanna Harris (University of Glasgow) – Karina Groemer (Natural History Museum Vienna) – Sonia Machause López (University of Valencia)

SESSION ABSTRACT

The aim of this session is to bring together researchers from the humanities and hard sciences to present current research on approaches to sensation and perception of the human body in understanding the past. From a humanities perspective, sensory archaeology came to attention in the 1990s notably through Chris Tilley’s ‘Phenomenology of Landscape’ (1994) and Costance Classen’s ‘Worlds of Sense in history and across cultures’ (1993). Today archaeologists, historians and museum professionals use the sensorium as a tool for the analysis, presentation and interpretation of a plethora of actions/performances, things (stone, metals, textiles, houses, musical instruments), animals, plants, landscapes, spaces, monuments and periods in time (e.g. Gosden et al 2006, Howes 2006, Skeates 2010, Hamilakis 2013, Day 2013, Skeates and Day 2020; Landeschi and Betts 2023). From a hard science perspective, the senses are focused on the brain and nervous system as neural network, perceiving and responding to sensation. Developing out of Colin Renfrew’s cognitive archaeology of the 1990s, neuroarchaeology is used to apply to approaches for understanding the past through human cognition (Stout 2015). This includes the role of the mind as an organ processing human experience, and had been applied to making tools, complex decisions, language and understanding the evolution of humanity (e.g. Malafouris & Koukouti 2022, Malafouris 2019). Archaeologists have debated the tension between these approaches as treating the past (and present) body as a universal, with biological capacities that enable and restrict sensations, and the human as the centre of culturally ordered experiences, where biological capacities are interpreted according to ways of knowing. We invite archaeologists to present innovative methods and datasets exploring sensation from across the spectrum of humanities and hard sciences to address the question: what is the significance of human sensation for understanding the past, and present, of humanity?

CONTRIBUTION ABSTRACTS

407. SENSATION, PERCEPTION AND THE APPEAL OF LINEN TEXTILES IN THE DEEP PAST

**Contribution format:** Oral  
**Contribution authors:** Susanna Harris (University of Glasgow)

Research indicates that woven textiles are innovative materials of Neolithic and Bronze Age assemblages. The earliest preserved textiles are made of plant fibre, often flax, *Linum usitatissimum*. These were first present in Southwest Asia around 10,000 BCE, later adopted across the North Mediterranean, central and northern Europe. Given that textiles woven from flax (linen) were introduced into already existing cloth assemblages, how may this fabric have been perceived? Did they offer a unique and appealing range of sensations? On this basis, why may these textiles have become so widely adopted? This paper addresses these questions through results of a handling experiment. In the experiment participants were asked to respond to sensory questions about an assemblage of replica cloth-type materials including furs, leather, twining and knotless netting that are characteristic of some late hunter-gatherers, and a linen textile. The questions included aspects of visual appearance, odour, touch sensations and sound. Questions about preferences and dislikes revealed modern ideas of how sensation and perception relates to attitudes towards the materials, concepts of usefulness, ethics and cultural learning. By focusing on the linen textile, these results are used to address what may have been appealing and enduring about this type of cloth in the past.

1145. ATTENTION IS A ‘ZERO-SUM GAME’: ON THE EVOLUTION OF VISUAL PATTERNS OF ATTENTION IN PREHISTORIC CENTRAL GERMANY

**Contribution format:** Oral  
**Contribution authors:** Bruno Vindrola-Padrós – Lizzie Scholtus (Institute of Pre- and Protohistoric Archaeology, Kiel University | XScape: Material Minds (ERC 951631))

The study provides a different approach to explaining stylistic variation, i.e. from a visual cognition perspective, by focusing on the effects stylistic attributes (i.e. visual properties) of vessels have on human patterns of attention. In other words, our study focuses on what prehistoric pottery styles ‘do’ to their viewers. With the aim of determining the diachronic changes in visual patterns of attention towards pottery in prehistoric central Germany, a free-viewing experiment was conducted at the State Museum of Prehistory in Halle (Saxony-Anhalt, Germany) using 41 pottery vessels that span from the year 5500 to 1 BC, i.e. from the start of the Neolithic to the Late Iron Age. We used eye-tracking to analyse fixation locations and durations, along with pupillometry to assess cognitive load, while participants viewed these vessels. We found that participants primarily focused on decorative patterns, with pottery from the Early Neolithic period receiving the most visual attention. The results indicate that in general pottery styles become decreasingly captivating or attention-grabbing during the last five thousand years of prehistory, which we argue was linked to the increase in standardisation of pottery, the shift of the household and part-time specialisation of craftsmanship towards other materials that functioned as new media of symbolic expression (e.g. metals and glass), and the increasing diversification of different social spheres (e.g. economic, ritual, socio-political). As a consequence, we argue, a feedback mechanism was created between the loss of interest in pottery as the main medium of symbolic expression and its visual cognitive effects, leading to a shift in attention towards other crafts and specific social spheres. Our study, thus, shows how material culture played a role in perpetuating, but more importantly transforming patterns of visual attention in relation to changes in social institutions.

946. RATTLING JEWELLERY AND SOFT CLOTH - SENSORY ASPECTS OF HALLSTATT PERIOD CLOTHING

**Contribution format:** Oral  
**Contribution authors:** Karina Groemer (Natural History Museum Vienna)

This paper aims in presenting case studies from the Early Iron Age in Central Europe, about the sensory aspects of textiles and dress, about look, touch, feel and sound: a grave with large brooches with rattling pendants from Hallstatt and ornaments with rattling pendants and bobbles from the Býčí skála Cave – both markers of the social elite. Visual signals sent for example with clothing, jewellery or headgear, together with body language (gestures, posture, and stance), are unconsciously read by the receivers who then decode and understand them. This aspects of visibility relate to a direct, non-verbal communication and such interaction between people. Studies in semiotics also work with visual codes such as colours, brightness, design, pattern and others – those are traditional aspects to be analysed e.g. on metal artefacts such as jewellery and dress accessoires. For our understanding of Iron Age garments, also thoughts about touch and feel, soft wool vs. hard metal elements are to be discussed as well as the impact of sound. In Hallstatt Culture, brooches with rattling pendants as well as jingles, bells and other sounding items have been used as personal ornaments and were attached to garments, especially of rich women. In an interdisciplinary approach this can be studied in music-archaeological, acoustic and psychoacoustic research. The sounds of the objects create acoustic fields, influence the acoustic environment of the people and thus their listening habits. Such, a visual and acoustic code of clothing of Iron Age ladies of the upper social strata is created, including specifics of haptics.

2157. THE SENSORY EXPERIENCE OF FUNERARY TEXTILES IN ETRURIA

**Contribution format:** Oral  
**Contribution authors:** Audrey Gouy (University of Lille)

The sensory dimension of textiles in Antiquity has been highlighted several times (Harris 2019, Harris 2022, Grömer et al. 2024). Indeed, fabrics stimulated and engaged the senses. They affected through their appearance, their weight, their smell, their texture, their sound. And as such, they provoked emotions. Textiles were particularly used in funerary rituals. They contributed to create a ritual and consecrated space. They defined a suspended moment in everyday life. And they assisted both the living and the dead in a crucial moment of social, psychological and symbolical transition. This paper aims to investigate the use of textiles in Etruscan funerary practices, and to focus on their sensory dimension. The cross-study of archaeological finds and iconography shows indeed an extensive use of textiles during funerals. They were manipulated as dress, furniture, and tents. The investigation and analysis of data show that specific textiles were appearing at different times and stages during the funerals, creating thus different sensory experiences all along the funerals, from the public exposure of the dead (prothesis), to the deposit of the corpse in the grave, and the closure of the tomb. Moreover, textiles appear to have been intensively manipulated during some specific funerary performances, which were held as close as



possible to the dead, such as dance, music, banquet, and wine consumption. Indeed, it appears that actors and performers were regularly changing dress, with the aim to control the emotions of the participants through textiles’ colours, forms, texture, motion, and sound. Furniture and tents were also highly engaged in funerals, by organizing performances around the dead, actively creating a space of intense emotions and mixed sensations, and highlighting the different stages of the funerals.

1888. HERITAGE WITHOUT HERITAGE: DEVELOPING A MULTISENSORY MUSEUM MODEL OF AN UNEARTHED ROMAN BATH

Contribution format: Oral  
Contribution authors: Mila Mitrovic (University of Belgrade – Faculty of Architecture)

In recent decades, there has been a growing focus on sensory aspects across various scientific disciplines, including museology. Traditionally dominated by an oculus-centered approach, contemporary museum practices increasingly integrate multisensory methods for object presentation and learning. This paper explores the potential of representing the heritage of Roman baths and bathing culture through a multisensory architectural approach, using the case of Niška Banja. Niška Banja, spa town of Niš, presents a unique site: as a thermal spring with a long history of use, it is known to have been used by the Romans and is linked to the nearby Mediana archaeological site. However, the remains of its Roman baths remain largely unexplored and undocumented. The first part of the research investigates sensory experiences in Roman baths, using the Caracalla Baths as a primary example, alongside a comparative analysis of other Roman baths in the Moesia Superior region. This analysis is further supported by the study of Vitruvius’ Ten Books on Architecture, which provides detailed descriptions of Roman bath structures and their architectural principles. The second part explores how these multisensory experiences can be interpreted through architectural design. The result is a design project for a museum that integrates multisensory architecture to offer insights into the heritage of Roman bathing culture. The proposed museum aims to bridge the gap between the known but unexplored heritage of Niška Banja and contemporary audiences, creating a space where history is experienced through the senses, rather than merely observed. This approach not only preserves the legacy of Roman baths but also redefines how visitors interact with archaeological narratives beyond traditional visual representation.

952. STRANGE SMELLS AND NOISY NEIGHBORS: SENSORY ENCOUNTERS BETWEEN HUNTER-GATHERERS AND EARLY FARMERS

Contribution format: Poster  
Contribution authors: Milica Mitrovic (Archaeological Collection, University of Belgrade)

Through the senses, individuals gather information about the external world, both consciously and unconsciously. Both biological predisposition and cultural influences shape the process of information processing before a stimulus is even perceived. When studying sensory perception, we assume similar abilities within the same human or animal species. In humans, the senses register stimuli at different distances. Vision detects distant stimuli, and smell and sound work at mid-range, while taste and touch require direct contact. These stimuli are categorized as familiar or unfamiliar. According to appraisal theory, a stimulus can be perceived as desirable (useful or pleasant), dangerous, or irrelevant. This perception triggers a reaction based on personal experience and cultural codes (such as taboos), leading to avoidance (flight), confrontation (elimination of the stimulus), or approach. Within this framework, I examine the Neolithization period from the perspective of Mesolithic communities. Early farming and herding populations brought new objects and behaviours into Europe, creating a challenging and unfamiliar sensory environment for local hunter-gatherers. So, were Neolithic newcomers perceived as “smelly and loud neighbours”? This study explores interactions between these communities—conflict, coexistence, and passive non-interference—through the lens of sensory perception. Dynamic models of understanding and evaluating the sensory world of “others” or “strangers” will be examined using ethnographic, anthropological, and sociological research on interethnic relations in contexts of colonization and globalization.

2267. PERFUMED LANGUAGE: THE USE OF SCENT-IMAGERY IN SAPPHO, CATULLUS, AND OVID

Contribution format: Poster  
Contribution authors: Seraphina Vasilodimitrakis-Hart (Aristotle University of Thessaloniki)

This poster examines the uses of scent-imagery in Catullus and Ovid and how these perfumed images reference the use of enargeia in Sappho’s poetry. Scent-imagery creates a scented atmosphere in which the action of the poem takes place, while also allowing the poet to make oblique references. This obliqueness suits the Neoteric poetry of Catullus, and Ovid’s referential style, while Sappho’s poetry makes use of scent-imagery to create atmosphere. In an essay on sparsiones and the role of smell and colour in the Roman circus, Jo Day writes that “The fragrant nature of the sparsiones meant that colour had smell, something that Romans would have been used to and maybe even expected, as many perfumes were dyed” (Day 2017: 186. This statement can also apply to poetic

descriptions. If the sparsiones of the circus and everyday perfumes were tinted, then they created an association of scent with colour, and this could be exploited to great effect in poetry. The poets make liberal use of headily scented herbs and flowers to describe colour. They can evoke a complex ‘smellscape’ while simultaneously describing a colour indirectly and poetically. This all fits into a larger poetic tradition, particularly in elegiac and lyric poetry, but the very clear influence Sappho had on Catullus, who in turn was a great influence on Ovid, suggests a more direct link between these three great poets. Though they follow her lead, the two Roman poets put their own spin on Sappho’s perfumed words: Catullus tends to add a dirty twist to his scent-imagery, combining low-brow vulgarity with high-brow poetry; while Ovid plays with the relationship between colour and scent. The implicit delicate and fleeting nature of florae and their scents, as well as their beauty, gives them a privileged role in love affairs and love poetry.

80 HUMAN REMAINS IN SETTLEMENTS: BURIALS, NON-BURIALS AND...WHAT ELSE?

Session theme: 3. Exploring methods in research, education and communication  
Session format: Regular session  
Session keywords: Settlement Burials, Archaeothanatology, Bioarchaeology, Funerary Practices,  
Session organisers: Penny Bickle (University of York) – Laura Waldvogel (Laboratoire d’archéologie préhistorique et anthropologie (LAP), Université de Genève) – Iseabail Wilks (University of York) – Sabina Cveček (Field Museum, Chicago | Austrian Academy of Sciences) – Sofija Stefanović (University of Belgrade)  
Session discussant: Kevin Kay (University of Leicester)

SESSION ABSTRACT

Archaeological research often documents the discovery of human remains in settlements, regardless of the period concerned. They are found in pits dug for this very purpose or in domestic pits reused after their original function (e.g. silos). Furthermore, those remains appear as either complete or incomplete skeletons – in the latter case, ranging from isolated or scattered bones to anatomical segments. These characteristics, which have sometimes been opposed to contemporary practices noticed in corresponding graveyards, have led researchers to put forward various hypotheses, such as the social exclusion of these individuals by the group (e.g. “deviant” or “atypical” burials). They are often viewed as low status in comparison to those receiving other burial rites and hence are often also devalued in our archaeological narratives of mortuary rituals. However, the ethnographic record demonstrates the complexity of practices and that we should not interpret these remains based on their context of discovery alone. Indeed, ethnographic records testify to various practices and gestures, (un)related to funerary customs, that may have resulted in the presence of bodies or the scattering of bones, either within the village space or the houses themselves (e.g. burial deprivation, cases of malemort, judicial decisions, ancestor worship, personhood). This session invites papers dealing with human bones found in settlements, with no geographical or temporal limits. Papers considering a broad range of themes are welcomed, including archaeothanatology, bioarchaeology, grave goods, kinship and social hierarchy, as well as funerary rites and depositional practices. Its aim is to encourage the interrogation of these types of human remains and discuss a variety of methodological approaches, including mixed methods. The aim of this session is to interpret the practices behind those deposits, mobilizing ethnographic data, wherever possible, to open up the field of interpretative possibilities.

CONTRIBUTION ABSTRACTS

535. INHABITING DEATH: EXPLORING THE ROLE OF SETTLEMENT BURIALS IN COPPER AGE ITALY

Contribution format: Oral  
Contribution authors: Annamaria Daniele – Giulia Recchia – Alberto Cazzella (Sapienza University of Rome, Department of Antiquity)

Human remains found in settlements during the Italian Copper Age (IV–III millennia BCE) offer valuable insights into the practices and social dynamics of prehistoric communities. These burials vary widely, from fully intact interments to scattered or incomplete skeletal remains, reflecting diverse choices in how the dead were treated and revealing the complex connections between the living and the deceased. This study focuses on the relationship between burials within settlements and those in formal cemeteries, asking whether these deposits reflect marginalization, ritual practices, or alternative forms of social representation. Central to the investigation is the question of access: why were certain individuals buried within settlements while others were interred in necropolises? Who were the people buried in these domestic contexts, and what factors—social, symbolic, or practical—shaped their place of burial. By analysing burial typologies, bioarchaeological data and associated



grave goods, this study seeks to reconstruct aspects of community life and explore the organization of Copper Age societies. The comparison of settlement burials with contemporary necropolises aims to identify patterns of inclusion and exclusion, providing a deeper understanding on the social and cultural dynamics that shaped burial practices within settlements during the Copper Age in Italy.

**669. BURIALS WITHIN SETTLEMENT FEATURES OF THE EARLY BRONZE AGE IN SOUTHEASTERN POLAND**

**Contribution format:** Oral  
**Contribution authors:** Anita Szczepanek (Institute of Archaeology an Ethnology Polish Academy of Sciences | Department of Anatomy Collegium Medicum Jagiellonian University) – Paweł Jarosz (Institute of Archaeology an Ethnology Polish Academy of Sciences)

In the Early Bronze Age of southeastern Poland, the tradition of burying human remains within settlement features is evident. These structures date to the period 2300–2000 BC and are associated with Early Mierzanowice culture communities. The burial pits were indistinguishable from typical settlement features and, in most cases, contained more than one individual. These burials predominantly included the remains of young individuals and females, with some representing partial interments. In contrast, male burials from this period were typically located in cemeteries and were accompanied by grave goods in accordance with established funerary customs. A notable aspect of the Mierzanowice culture is the scarcity of children’s graves within cemeteries. The arrangement of human remains found within settlement pits suggests that the deceased were not interred at the same time, resulting in their placement across different stratigraphic layers. Detailed examinations of the skeletal remains allowed for the reconstruction of the sequential use of these pits, which was further validated through radiocarbon dating. Additionally, stable carbon ( $\delta^{13}\text{C}$ ) and nitrogen ( $\delta^{15}\text{N}$ ) isotope analyses were conducted to reconstruct the diet of the buried individuals, while strontium isotope ( $^{87}\text{Sr}/^{86}\text{Sr}$ ) analyses provided insights into their mobility patterns. These integrated studies have significantly enhanced our understanding of burial practices and social dynamics in the Early Bronze Age of southeastern Poland. This research was funded by the National Science Centre, Poland (NCN), under project number 2020/39/B/HS3/00454.

**729. INTRA-SETTLEMENT BURIALS, KINSHIP, IDENTITY AND SOCIAL INCORPORATION (OR NOT)**

**Contribution format:** Oral  
**Contribution authors:** Stella Souvatzi (University of Thessaly)

However small in absolute numbers, the burying of the dead and generally the presence of human remains within the boundaries of the settlement still is a social and symbolic praxis that encodes distinct aspects of a community’s narratives, worldviews and social rules, not least because it apparently did not include the majority of the population. This is particularly true for contexts like Neolithic Greece and Turkey, and generally Southeast Europe and Southwest Asia, in which the vast majority of human remains comes from everyday, lived spaces. In fact, the scarcity of cemeteries or of separate mortuary sites in these regions is contrasted with the abundance of settlements, and the general lack of emphasis on the visibility of the dead underlines the focus on the realms of the living and the daily interaction at the household and the community level. Within this wider social and cultural framework, the noted diversity in intra-settlement mortuary rites deserves spatial attention. Using settlement data from Neolithic Greece and to a lesser extent from Turkey, this paper identifies particular patterns of the disposal of the deceased and the manipulation of human bones, depending, for example, on location, treatment, age and gender, and attempts to tie these to key social phenomena, including kinship, identity, memory and degrees of social incorporation (or exclusion).

**842. INVISIBLE DEATH RITES IN THE EARLY NEOLITHIC: RESULTS OF ARCHAEOETHANATOLOGICAL ANALYSIS OF LINEARBANDKERAMIK SETTLEMENT BURIALS**

**Contribution format:** Oral  
**Contribution authors:** Iseabail Wilks (Department of Archaeology, University of York) – Zuzana Hukeľová (Institute of Archaeology, Slovak Academy of Sciences) – Martin Furholt – Katharina Fuchs – Maria Wunderlich (Institute for Prehistory and Early History, Christian-Albrechts-University, Kiel) – Krisztián Oross (Institute of Archaeology, HUN-REN Research Centre for the Humanities) – Zdeněk Tvrdý (Anthropos Institute, Moravské zemské muzeum, Brno, Czechia) – Penny Bickle (Department of Archaeology, University of York)

The central European early Neolithic Linearbandkeramik culture (c. 5500-4900 cal. BC) is associated with an extensive burial record, comprising thousands of individuals recovered from both cemeteries and settlements, and treated in diverse ways. However, one form of practice is often cited as ‘regular’. This comprises the fresh body

deposited in a grave at a cemetery, flexed on its left side, and provisioned with grave goods. This narrow definition of normative practice results in burials from settlements, which show greater diversity in character and are less frequently furnished, being understudied or even explicitly dismissed as ‘deviant’. However, the application of fresh methodological and theoretical perspectives, such as those derived from archaeoethanatology, provide new material for the interpretation of mortuary practice within settlements. If the body is considered the central element of the burial and studied accordingly, new evidence for complexity, care and intimacy is highlighted within these diverse mortuary practices. This paper presents the results of retrospective archaeoethanatomical analysis conducted on settlement burials from the central European distribution of the Linearbandkeramik, and considers the potential contribution of a ‘body-first’ approach to the broader study of funerary material from settlements.

**1359. RECONSTRUCTING ENEOLITHIC FUNERARY PRACTICES AT FORNACE CAPPUCCINI (RAVENNA, ITALY): MULTI-DISCIPLINARY ANALYSIS OF PRIMARY AND SECONDARY BURIALS WITHIN AN ANNU-LAR DITCH**

**Contribution format:** Oral  
**Contribution authors:** Teresa Nicolosi – Sara Silvestrini – Sara Bernardini (University of Bologna) – Federico Lugli (University of Modena and Reggio Emilia) – Mary Anne Tafuri (Sapienza University of Rome) – Monica Miari (SABAP per la città metropolitana di Bologna e le province di Modena, Reggio Emilia e Ferrara) – Rita Sorrentino – Valentina Mariotti – Maria Giovanna Belcastro – Stefano Benazzi (University of Bologna)

The contribution examines a site which is a unicum among Italian Eneolithic funerary contexts, represented by Fornace Cappuccini (Ravenna, northern Italy). Starting from the Neolithic, the site was originally used for housing purposes and was characterised by the presence of an artificial annular ditch, alternatively interpreted as a defensive or hydraulic structure, a stockyard or the perimeter of a sacral area, although its original function remains unclear. In a subsequent phase, during the Eneolithic period, the ditch was re-used for funerary purposes hosting several human remains in both primary and secondary deposition, along with the remains of at least two canids and other faunal material. The present study aims at investigating the peculiar funerary ritual put into practice within the ditch and its possible implications. After calculating the minimum number of the individuals and assessing the representation of each skeletal element, we conducted a careful taphonomic analysis of both primary and secondary burials, highlighting the presence of some perimortem lesions likely related to defleshing and disarticulation. Different types of burials may suggest different phases of a funerary ritual likely intended to create secondary burials with a deliberate selection of specific bone elements, particularly crania. At the same time, different treatments of the individuals may suggest different social roles. Primary depositions of adults are mostly related to female individuals, thus we decided to run enamel peptide analysis of the protein amelogenin in order to determine the sex of the only child in primary deposition. Then, we performed C, N and Sr isotope analysis to explore the diet and the provenance of the individuals in order to highlight eventual differences among them. Together, these analyses offer new insights into the complexity of Eneolithic funerary practices at Fornace Cappuccini, shedding light on the ritual and social dimensions of this unique burial context.

**1839. ANCESTORS, ACCIDENTS, OR ODDKIN: WHO CAN SETTLEMENT REMAINS BE, AND WHAT CAN THEY DO?**

**Contribution format:** Oral  
**Contribution authors:** Marianne Hem Eriksen (University of Leicester | National Museum of Denmark) – Kevin Kay – Veronica Tamorri – Emma Tollefsen (University of Leicester)

In late prehistoric Scandinavia, human remains are frequent (and frequently overlooked) settlement finds. They present an interpretive dilemma: who are these people, why are they here, why aren’t they in cemeteries? Interpretations are generally made on an ad-hoc basis, with little synthesis or theoretical consideration. Cemeteries in the period are often characterised as ‘family plots’ or ancestor-commemoration, and sometimes settlement remains are interpreted in this rubric. Other remains sit in an uncomfortable space, sometimes interpreted as ‘votive offerings’ and other times as ‘accidental inclusions’. All three interpretations pivot around the idea of conscious depositional intent: can one ever unintentionally bury (e.g.) a human femur? Are all interactions with dead bodies textured by reverence for the person themselves? Can bodies be objects. We want to sit with this interpretive discomfort, considering how human bodies get worked into everyday spaces and social relations in ways that challenge modern notions of personhood and interpersonal ties. Presenting ongoing work on settlement remains from Iron and Viking Age Scandinavia as windows on prehistoric body-politics, we show how bodies part and whole texturised dwelling spaces and practices, without necessarily being humanised as ancestors or persons.



1902. EARLY PERMANENT SETTLEMENTS AND DOMESTIC BURIALS DURING THE DANUBE GORGES MESOLITHIC-NEOLITHIC TRANSFORMATIONS (VLASAC AND LEPENSKI VIR): DOMESTICATING THE OTHER?

**Contribution format:** Oral  
**Contribution authors:** Camille De Becdelievre (Associate member, AMU, CNRS, Minist Culture, UMR 7269 LAMPEA) – Sabina Cveček (Field Museum of Natural History, Chicago | Austrian Archaeological Institute, Vienna) – Tamara Blagojević – Aleksandra Žegarac – Jelena Jovanović (BioSense Institute, University of Novi Sad) – Sofija Stefanović (Laboratory For Bioarchaeology, Faculty of Philosophy, University Of Belgrade)

Between the Final Epipalaeolithic and Early Neolithic, new ways of occupying environments, along with the construction of durable settlements, triggered the impulse for domestication. As stabilizing structures, houses played a central role in shaping the emerging “domesticated” lifestyle by centralizing daily practices. Early on, the dead became part of the domestic sphere, integrated within built environments. The increasing proximity between the living and the dead may reflect a deeper link between symbolic rituals and the social or cognitive foundations of early village life. After millennia of adaptation in the Near East, the Neolithic package spread into Europe, encountering Mesolithic hunter-gatherers with markedly different ways of inhabiting the world. In the Danube Gorges (Central Balkans), exceptionally well-documented sites such as Vlasac and Lepenski Vir provide unique insights into this transition: Mesolithic constructions and burial practices, Mesolithic-Neolithic interactions and the emergence of a unique hybridized culture, as well as the adoption of domesticates. Using bioarchaeological proxies, this paper explores the cultural, social, and symbolic significance of in-house burials in early sedentary contexts and their transformation over the Mesolithic-Neolithic transition. Inferred biographies (sex, age-at-death, diet, origin, ancestry) of individuals associated with built structures are examined alongside aspects of the mortuary record. In the Gorges, particular social or biological identities are distinct in Mesolithic mortuary practices, especially in relation to built structures. During the Mesolithic-Neolithic contact period, architecturally refined houses may have served specific roles, including facilitating cultural and biological interactions between groups. In this context, in-house burials seem particularly linked to the fluids identities of those considered ‘New’ or ‘Transitional’ within the community—whether neonates, newcomers from agricultural back-grounds, or migratory non-human-animals. From a symbolic perspective, constructed buildings and in-house burials may have contributed to the domestication process, granting a social status to ‘the Other’ – hybridized, incorporated, and anchored into the domestic sphere.

1936. AT ODDS... YET THE CHORUS GROWS: A MULTIVARIATE PERSPECTIVE ON MORTUARY PRACTICES AND SOCIAL DYNAMICS AT PORTO TORRÃO (PORTUGAL)

**Contribution format:** Oral  
**Contribution authors:** Mónica Corga (UNIARQ - Centro de Arqueologia da Universidade de Lisboa | Morph / Octopetala, Lda. | FCT – Fundação para a Ciência e a Tecnologia)

The megasite of Porto Torrão is a large ditched enclosure in southwest Iberia occupied from the mid-4th to the late 3rd millennium BC. Since its first discovery, in the 1980s, preventive archaeology excavations yielded extensive data, revealing a complex mortuary landscape. Human remains, both within and beyond the enclosed area, are found in ditches, pits, or collective tombs - clustered or isolated -, as primary depositions or evidencing significant post-depositional manipulation. The deposition of bones or corpses in pits and ditches has traditionally been regarded as uncommon, challenging conventional mortuary models, within a cosmological framework thought to be dominated by collective graves. However, expanding datasets suggest that this ”non-normative” classification may stem from an interpretative bias shaped by research priorities and preconceived expectations. The combination of Geoarchaeology and Archaeothanatology field protocols and post-field spatial, stratigraphic, and archaeometric analysis, has allowed a multivariate approach to the attitudes towards death and the dead among the dwellers of Porto Torrão, both in a synchronic and diachronic perspective. This fine-grained reconstruction of the site’s mortuary system(s) allows the discussion of:

1. Situated mortuary contexts in place – analysing how mortuary practices were embedded in specific locations;
2. Variability in mortuary operational sequences – examining funerary rites and depositional practices over time, by grave and cluster, and at the broader scale of the site;
3. Interrelation of different mortuary contexts - exploring connections between mortuary practices, spatial distribution, and wider socio-cultural patterns.
4. Economic, social, and cosmological structures – investigating how mortuary practices reflect and inform broader aspects of economic organization, social hierarchy, belief systems.

Finally, we reassess concepts such as “deviant” or “non-normative”, questioning their applicability and interpretative challenges. The evidence from Porto Torrão suggests a more fluid approach to death, underscoring the need for renewed theoretical and methodological frameworks in prehistoric mortuary archaeology.

2238. THE RISE AND DECLINE OF ANCESTOR MANAGEMENT IN PREHISTORIC ITALY

**Contribution format:** Oral  
**Contribution authors:** Jess Thompson (National Museums Scotland) – John Robb (University of Cambridge)

People in all societies both interact with the dead as para-human beings in their own right, and use them as a resource in constructing relations with other people. In some ways, these roles define ancestors. However, there are many possible ways to do these things. The question, then, is not “were the dead ancestors or not?” but “what kind of ancestors were they?” We should expect to find shifting emphases in how people managed and related to the dead over time – “period” styles of ancestor. This talk explores this view by comparing how people related to their dead in prehistoric Italy, comparing three styles of ancestor management – a Neolithic style focusing upon very active ongoing, often intimate interaction with the dead as a generalised ancestral presence in the context of lived village space; a 4th-3rd millennia BCE style which distanced the dead from the living, personified them and invested them with cosmological powers, and a Bronze Age style in which the dead gradually lost their cosmological powers and instead assumed more specific personification with much more visible social distinctions.

1596. EXTENSIVE PERIOSTITIS IN A HUMAN SKELETON IDENTIFIED IN THE NECROPOLIS OF 15TH-19TH CENTURY AT “ST. ATHANASIOS” CHURCH OF NICULIȚEL (ROMANIA)

**Contribution format:** Poster  
**Contribution authors:** Paul Donciu (“Alexandru Ioan Cuza” University of Iași, Faculty of Biology) – Vasilica Groza (Romanian Academy, Iasi Branch, Anthropological Research Centre “Olga Necrasov”) – Ozana Ciorpac-Petraru (“Alexandru Ioan Cuza” University of Iași, Faculty of Biology) – Aurel Stănică (Eco-museum research institute “Gavrilă Simion”) – Eliza Crețu (“Alexandru Ioan Cuza” University of Iași, Faculty of Biology) – Luminița Bejenaru (“Alexandru Ioan Cuza” University of Iași, Faculty of Biology | Romanian Academy, Iasi Branch, Anthropological Research Centre “Olga Necrasov”)

This study focuses on the pathologies identified on the skeleton codified M114/S3, recovered during archaeological excavations conducted in a cemetery of 15th-19th centuries, located near the “St. Athanasios” Church in Niculițel (Tulcea County, Romania). The preventive archaeological research, conducted during 2022-2023 in this necropolis, documented 348 inhumation graves/funeral complexes. Sings of pathology have been identified on the skeleton codified M114/S3. This skeleton belonged to a male individual, with estimated age of approximately 50 years old. According to archaeological evaluation, the skeleton under study is date to 19th century. Macroscopic and stereomicroscopic analyses were followed by imaging analysis (i.e., radiography). Radiographs were performed using the KaVo OP 3D Pro medical radiological equipment, at 66.3 kV and 5 mA. At the level of the preserved long bones (i.e., ulna, femurs, tibias), new bone tissue formed was identified, indicating the presence of periostitis. Bone porosity also was observed on the extern surface of the occipital, the anterior surface of the sacrum, and on the hip bones, which could indicate a vitamin C deficiency associated with periostitis. The dentition showed wear, and calculus. Alveolar bone resorption, characteristic to periodontitis, was observed on the mandible. The skull also attracted attention due to the presence of a deposit on the endocranium, possible a trace of putrefaction fluid. Taphonomic and paleopathological analysis was limited by the poor state of preservation of the skeleton.

1689. POSSIBLE INTERPRETATION OF HUMAN REMAINS IN SETTLEMENT PITS. AN EARLY BRONZE AGE CASE STUDY FROM ULRICHSKIRCHEN (AUSTRIA)

**Contribution format:** Poster  
**Contribution authors:** Domnika Verdianu (Department of Prehistory and Historical Archaeology, University of Vienna | Austrian Archaeological Institute, Austrian Academy of Sciences)

Placing bodies in settlement pits is a well-documented and recurrent practice during the Early Bronze Age Únétice Culture. However, the reasons that led the society to bury some individuals in graves within a burial ground and to place others in settlement pits are rarely discussed. Why are these differences evident in the handling of human remains? To what extent can differences between the various deposition and burial activities be identified in an archaeological context? In order to answer these questions, both the depositions of human remains in settlement pits and the contemporaneous graves from the site in Ulrichskirchen (Austria) were archaeologically and osteologically analysed and compared. It is evident that the graves are very uniform, whereas the depositions in the settlement pits vary greatly in almost every respect, from the location and dimensions of the features, the orientation, position and number of the skeletons, to the finds recovered from the pits. No correlation has been established between biological characteristics, such as age at death, sex or the state of health of an individual and the depositional context. The interpretation of the depositions in the settlement pits cannot be generalised,



and each individual feature must be interpreted according to the available evidence. In addition to intentional burials, possible interpretations include the temporary storage of the bodies or their disposal. This study highlights the complexity of handling the dead during the Űnětice Culture.

2062. TRANSITIONS BETWEEN THE LATE BRONZE AND EARLY IRON AGE - INSIGHTS FROM A MULTIPLE BURIAL PIT AT HÓDMEZŐVÁSÁRHELY-KOPÁNC S XI

**Contribution format:** Poster  
**Contribution authors:** Anett Gémes (Department of Biological Anthropology, Eötvös Loránd University | Salisbury Zrt., Budapest) – Dániel Pópity (Móra Ferenc Museum, Szeged) – Gábor Szabó (Institute of Archeological Sciences, Eötvös Loránd University) – Tamás Szeniczey – Tamás Hajdu (Department of Biological Anthropology, Eötvös Loránd University)

The Gáva culture was a major archaeological complex in the Eastern Carpathian Basin between the 12th and 9th centuries BCE. It was characterized by a homogeneous ceramic style, large settlements and distinctive Hajdúböszörmény-type metalwork. Notably, cemeteries linked to the culture remain largely unknown, aside from a few uncertain burials. These changes in the 9th–8th centuries BCE with the appearance of the Mezőcsát culture in the Great Hungarian Plain, linked to the steppe and forest-steppe regions. Their inhumation burials are rare and concentrated at key transport hubs, while Gáva settlements likely persisted. Recent discoveries of mass graves (e.g., Pusztataskony, Tiszabó, Karcag, Gomolova) dating to the Early Iron Age (9th–8th centuries BCE) offer new insights. A radiocarbon date places them in the 8th century BCE, supported by associated artifacts. The interpretation of such multiple burials is aided by a newly discovered assemblage from a large-scale excavation (2016–2017) at Hódmezővásárhely-Kopáncs in the southern Great Hungarian Plain, prompted by sand mine expansion. A burial pit was uncovered with eleven individuals in various stages of decomposition and two pottery fragments, dated to the 9th–8th century BCE. The ceramic material from Kopáncs exhibits a strong connection to the contemporaneous Gornea-Kalakaca-Bosut complex of Vojvodina and Banat, which corresponds to the end of the Gáva culture and the Early Iron Age. However, residual Gáva elements are also identifiable within the assemblage. A key question regarding these mass graves is how they should be interpreted: do they reflect the consequences of an epidemic, a massacre, or a specific mortuary ritual? Project No. C2284509 has been implemented with the support of the Ministry of Culture and Innovation of Hungary, funded by the National Research, Development, and Innovation Fund under the KDP-2023 scheme and the Bolyai Scholarship of the Hungarian Academy of Sciences (Project id: BO-783-22-8).

2090. DISCOVERY OF SETTLEMENT FEATURE WITH HUMAN REMAINS FROM DOLNÉ KRŠKANY FROM THE EARLY MIDDLE AGES IN SLOVAKIA

**Contribution format:** Poster  
**Contribution authors:** Lucia Nezvalová – Klaudia Daňová – Monika Gabulová – Zuzana Hukelová – Mária Krošláková (Institute of Archaeology, Slovak Academy of Sciences)

In 2021, during excavations at Dolné Krškany, a settlement feature containing the remains of six individuals was discovered. This feature was located within the site where Bronze Age graves and settlement features spanning multiple periods were found. Radiocarbon dating of charcoal from this feature suggests that the bodies were deposited in the feature at the end of the 9th or during the 10th century CE. At this time, Slovakia was part of Great Moravia, which began to decline towards the end of the 9th century. These turbulent times were likely marked by violence, even affecting the rural populations. Settlement features containing skeletal remains from the Early Middle Ages in Slovakia are relatively common and have traditionally been interpreted in various ways. The 14C dating of the further remains could suggest that the human remains found in settlement features dated to the Early Middle Ages might have been the provisional graves of victims of violent encounters during the late 9th and 10th centuries. However, supplementary data is needed to substantiate this hypothesis.

81 CONNECTIVITY AND ITS IMPACT ON CULTURAL DYNAMICS DURING PREHISTORY

**Session theme:** 3. Exploring methods in research, education and communication  
**Session format:** Discussion session  
**Session keywords:** Network analysis, Methodology, , Epistemology, Prehistory  
**Session organisers:** Solange Rigaud (CNRS, University of Bordeaux) – Vincent Delvigne (CNRS, UMR TEMPS, Paris) – Sergio Lozano (University of Barcelona) – Alain Queffelec (CNRS, University of Bordeaux)

SESSION ABSTRACT

The establishment of networks of contacts and exchanges over time is widely described as a process that facilitates the diffusion, consolidation, and homogenization of technical, economic, and symbolic traits across varying geographical and chronological scales. Social network models have shown that fully connected populations are capable of preserving knowledge over time and space, but they generate insufficient variation to produce complex and diverse cultural traits. In contrast, populations with intermediate levels of fragmentation exhibit a balance between the loss of cultural traits and the increase in cultural diversity through innovation. Applied to the study of past populations, network analysis provides us with a relational perspective to the dynamics of societal transformations, the pace of innovation, and the modalities of knowledge and skill transmission and preservation that we aim to document. While this analysis is predominantly applied to historical periods, pre- and protohistoric periods remain less explored. This is likely due to 1) the quantity of reliable data available to question the structure of archaeological networks and 2) the chronological precision required for paleohistorical reconstructions. This session aims to identify the contributions and perspectives, as well as the biases and limitations, of network analysis when applied to Prehistory. Presentations will demonstrate, through case studies, the precautions that must be taken before modeling human groups for which only material remains are available, scattered across different sites that are not strictly contemporary. Beyond methodological limitations, we seek in this session to explore the means to document the role of past populations’ social networks on their transformations: What factors (intrinsic or extrinsic) may have facilitated or constrained the connectivity of groups over time (hence shaping their social networks’ structure)? And in this context, can we identify how networks served as a foundation for innovations and their preservation over time?

CONTRIBUTION ABSTRACTS

1567. TRACKING UPPER PALEOLITHIC CULTURAL IDENTITY & EXCHANGE NETWORKS WITH RED DEER (CERVUS ELAPHUS) MAXILLARY CANINE ORNAMENTS

**Contribution format:** Oral  
**Contribution authors:** Josh London (Eberhard Karls Universität Tübingen) – Marian Vanhaeren (CNRS, UMR PACEA, University of Bordeaux | Eberhard Karls Universität Tübingen) – Nicholas Conard – Sibylle Wolf (Eberhard Karls Universität Tübingen | Senckenberg Centre for Human Evolution and Palaeoenvironment)

Personal ornaments have been singled out as a key artifact class for discerning cultural diversity in the European Upper Paleolithic. Regionally standardized ivory bead forms demonstrate that personal ornaments played a key role in the formation and maintenance of group identities among early human communities in Europe. However, an abundance of less intensively modified and more widely geographically distributed bead forms, such as perforated shells and teeth, suggests that not all Paleolithic personal ornaments participated in processes of cultural boundary maintenance. This study investigates diachronic and synchronic trends in the provenance, production, and display of low-modification red deer (Cervus elaphus) maxillary canine ornaments from the Aurignacian, Gravettian and Magdalenian occupations of the Swabian Jura and Southwestern France. Red deer canines have highly distinctive morphologies that vary diagnostically by sex, age, side and source population, providing a rough determination of faunal provenance as well as insights into culturally valent craft traditions. Here, morphological and morphometric faunal analysis, experimental use-wear and traceology and multivariate statistics are used to identify regionally discrete techno-cultural units as well as their corresponding transregional exchange relationships through time. These transregional exchange dynamics are further scrutinized to infer the shifting proximate social functions performed by red deer canine ornaments in the European Upper Paleolithic. A special focus is placed on the probable role of red deer canines as long-distance exchange media linking geographically remote pioneer communities in both the Aurignacian and Magdalenian technocomplexes. Transregional connections fostered by the reciprocal exchange of symbolically laden red deer canine ornaments would have mitigated local ecological risks, expanded effective breeding populations and ensured the retention of novel social and technological innovations in the sparsely inhabited landscapes of late Pleistocene Europe.

1005. STUDY OF THE CIRCULATION OF KNOW-HOW IN THE PALEOLITHIC: THE CASE OF THE RAYSSIAN BLADELET PRODUCTIONS (32–28.2 KA CAL BP)

**Contribution format:** Oral  
**Contribution authors:** Morgane De Parthenay (Université Paris Nanterre, umr 8068 TEMPS) – Vincent Delvigne – Laurent Klaric (CNRS, umr 8068 TEMPS)

This presentation is based on ongoing doctoral research focused on the circulation of know-how in the Upper Paleolithic. This issue is explored through the lens of a lithic armature production method found in France between c. 32.000 and 28.200 years cal. BP during the Upper Paleolithic: the “Rayssse bladelet production”. From



a prehistoric archaeological perspective, this standardized production method has a limited temporal range, making the associated artifacts true chronological markers. Moreover, its spatiotemporal distribution and highly homogeneous nature make it a particularly suitable case study for examining spatial and temporal transmissions. As a “similar way of doing things across time and space,” this method fits the definition of a technical tradition as outlined by ethnologists. For around ten archaeological sites spread across France, and through the concept of the “operational sequence” (chaîne opératoire), we study the manufacturing process of these armatures, from raw material procurement to their final production. We aim to discuss not only the homogeneity of the Raysse technical tradition but also the role of certain sites in its maintenance and transmission. To achieve this, the sites are compared using network analysis techniques (similarity networks and proximal point analysis) based on technical and lithological criteria established during the study. In this presentation, we will detail the methodology employed—particularly how network analysis enables a dynamic understanding of prehistoric traditions—as well as the initial results of our analyses.

**2286. EXPLORING PREHISTORIC CONNECTIVITY THROUGH ROCK ART - THE NETWORKS OF IBERIA AND BEYOND**

**Contribution format:** Oral  
**Contribution authors:** Joana Valdez-Tullett (Durham University | Wessex Archaeology) – Sofia Figueiredo-Persson (CHAM - NOVA University Lisbon | Iconictheory Lda)

Digital and computational technologies have changed the biography of rock art research in the last few years. From documentation to analysis, we have never known so much about the topic and in so much detail. This applies to Atlantic Rock Art and Schematic Art, two well-established Neolithic traditions of carving and painting in Iberia (and beyond), respectively. Both traditions can be found distributed across large areas, the Atlantic rock art being also created in other parts of western Europe, and Schematic Art all the way through the Mediterranean to Italy. This paper will present an overview of recent research which applied integrated multiscalar and interdisciplinary methodologies to the study of these traditions. Combining digital recording technologies, archaeometry and computational methods, including network science. This formal method of analysis enabled the development of an effective relational approach to the various scales of analysis of two comprehensive datasets, by refining relational patterning in a complete similarity network. In both case studies we were able to identify differences and similarities, as well as clear regional patterns, and further explore prehistoric connectivity and the cultural transmission mechanisms which allowed for the wide distribution of the traditions to become well-established entities over at least 2 millennia.

**1753. ELEMENT NETWORK ANALYSIS: A METHOD FOR EXPLORING THE SYNTAX OF ABSTRACT DECORATION ON ARTEFACTS**

**Contribution format:** Oral  
**Contribution authors:** Rie Bloch – Niels Johannsen (Aarhus University)

Studying past, dynamic networks of human interaction presents a major challenge in archaeology, as we often lack data about the relational processes connecting the origins and destinations of artifacts (Sindbæk, 2013). Unlike sociologists, archaeologists rarely have independent information to validate their network models. To address this limitation, we propose a novel approach: applying network analysis to static networks within artifact decoration itself. Our method, termed Element Network Analysis (ENA), identifies basic relational structures in abstract decorative patterns, such as connections between elements, the centrality rank of individual components, and other relational structures hypothesized to be significant within a given cultural context. ENA shifts the focus from dynamic interactions of people and objects to the intrinsic syntax of artifact decoration. We apply ENA to pottery from the Neolithic Funnel Beaker (TRB) period in southern Scandinavia (4000–2600 BCE), known for its elaborate abstract designs. While prior research on ceramics has emphasized typology and chronology, ENA reveals the underlying structural principles of decoration, which may reflect broader aesthetic, ideological, and social values. This application of network analysis represents a significant departure from conventional archaeological uses of formal network theory, addressing static rather than dynamic networks. Through this case study, we demonstrate ENA’s utility in uncovering the syntax of decorative patterns and discuss its broader implications for material culture studies. By focusing on decoration as a network of elements, we show how network analysis can provide new insights into the cultural logic underlying abstract designs, offering a new perspective on the interplay between aesthetics, cognition, and social organization.

**2125. HUMAN-AVIAN RELATIONS WITHIN SOCIO-MATERIAL-ECOLOGICAL NETWORKS: THE CASE OF ÇATALHÖYÜK**

**Contribution format:** Poster  
**Contribution authors:** Camilla Mazzucato (University of Turin | University of Copenhagen) – Demarchi Beatrice (University of Turin) – Lisa Yeomans (University of Copenhagen | UCL)

“What if we imagined a human nature that shifted historically together with varied webs of interspecies dependence? Human nature is an interspecies relationship.” (Tsing 2012:144). The large multiphase Neolithic site of Catalhoyuk (7100-6000 BC) displayed a complex and dynamic relationship between humans and birds throughout its long occupation. Birds were both hunted for subsistence and occupied an important place in Catalhoyuk’s symbolic world. How can we best investigate the deeply interconnected, dynamic and complex relations between humans and birds? Here, we propose a network approach to the exploration of the complex web of human-avian interactions at the site of Çatalhöyük. For this study, socio-material-ecological networks are used to synthesize and integrate ecological and archaeological variables within a single analytical relational environment. Through the construction of microscale intra-site network systems, we wish to reconstruct the way human-avian dynamics developed through time alongside social and environmental changes at this large Neolithic site.

**82 JEWELRY AND GRAVE OFFERINGS AS INDICATORS OF RITUAL AND IDENTITY IN PREHISTORIC AND ANCIENT BALKAN FUNERARY PRACTICES**

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** Mortuary archaeology, Funerary adornments, Grave Goods, Human body, Social status, Balkan prehistory  
**Session organisers:** Aleksandra Wisniewska – Tomasz Gralak (Wrocław University) – Ana Cristina Hamat (Museum of National History and Archaeology Constanța)

**SESSION ABSTRACT**

The archaeology of the Balkans displays a unique variety of burial practices, spanning from the Neolithic through to the Roman times. Each period presents distinct graves with unique burial rites and various types of grave goods. This diversity offers a promising foundation for studying the complex relationship between material culture and the human body, both in life and after death. Our research focuses specifically on jewelry and other forms of personal adornment, which we propose were not only functional or decorative but also integral to forming human/non-human hybrids. From this point of view, material culture acts as an extension of the body itself, altering perceptions of social status and identity. In our session, we aim to explore a range of issues and questions. For instance, why would a corpse need jewelry or another personal equipment? Does cadaver possess needs, or is it just a reflection of living people’s needs? When a society lays one of its members to rest, what roles do material artifacts play in this farewell process? Furthermore, how do such objects express the emotions of the mourners, and what do they reveal about cultural attitudes toward death? We also seek to question the identities symbolized by opulently adorned graves: is the buried individual remembered as an ideal ancestor, a fetish, a relic, or something else entirely? How do jewelry and personal belongings speak to the deceased’s gender and social status, if at all? Does these artifacts really have a special power? These questions are still open. We welcome scholars to contribute their interpretations and insights into these issues, furthering the discourse on how material culture intersects with the body, identity, and memory in the burial practices of the ancient Balkans.

**CONTRIBUTION ABSTRACTS**

**1621. THIRD MILLENNIUM CALBC HAIR ORNAMENTS - SYMBOL OF IDENTITY AND SOCIAL STATUS**

**Contribution format:** Oral  
**Contribution authors:** Zheni Vasileva (National Archaeological Institute with Museum at the BAS)

Hair ornaments in the form of hair-rings appeared as early as the beginning of the 3rd millennium BC in the Balkans and soon became one of the most characteristic and distinctive types of metal jewellery. A new type of jewellery is often associated with a new custom that expresses a particular social identity. Over time, the local societies adopted and developed the fashion for gold and silver hair-rings. The aim of this study is to reconstruct Early Bronze Age hairstyles by examining the development and significance of metal hair rings. The creativity and originality of Balkans craftsmen is evident in the way they took ideas from local crafts or from other jewellery centres and adapted them to local needs. Jewellery is key to understanding the way prehistoric people saw themselves and constructed their identity. The emergence of new local types of metal hair ornaments may have



been a result of the creation of a new sense of identity among local elites. The way these pieces of jewellery were worn is important for interpreting their social and cultural significance, as the way they were worn could have different meanings from one community to another.

**306. SPINNERS, WOMEN, OR SOMETHING ELSE? - TEXTILE PRODUCTION TOOLS AS GRAVE OFFERINGS IN IRON AGE DONJA DOLINA**

**Contribution format:** Oral  
**Contribution authors:** Julia Fileš Kramberger (University of Zagreb, Faculty of Humanities and Social Sciences, Department of Archaeology)

Prehistoric textile production tools were not just practical objects used in daily life—they also had symbolic value, attested by their presence in burials. In Central European Early Iron Age, particularly in the southeastern Hallstatt region and the southern Carpathian Basin, textile production was often reflected in funerary customs. The Iron Age site of Donja Dolina in northern Bosnia and Herzegovina is no exception, as spindle whorls and a single spool were found in about 25% of graves excavated in the early 20th century. Most of the spindle whorls are biconical or lenticular, with one unique star-shaped example. Some are plain, while others bear fine incised lines or, more commonly, concentric grooves on their surfaces. When looking more broadly at grave good assemblages at this site, spindle whorls mostly appear in burials without weapons but with plenty of metal elements of dress and jewellery typically associated with women. However, the number of spindle whorls in a grave doesn’t necessarily reflect the deceased person’s wealth or status—both the richest and simplest graves contained between one and six whorls. Additionally, many graves with traditional female dress and jewellery had no textile tools at all, which suggests these items were not a universal marker of female identity. Most likely, spindle whorls were included in the burials of individuals, predominantly women, who played a significant role in textile production during their lifetime. These women were maybe members of the elite, but they also possibly just managed weaving workshops, oversaw textile production, or were simply exceptionally skilled spinners and weavers recognized within their communities.

**449. RETHINKING THE PAST: THE ROLE OF GOLDEN FUNERAL MASKS IN BALKAN IRON AGE**

**Contribution format:** Oral  
**Contribution authors:** Aleksandra Wisniewska (University of Wrocław)

This presentation examine roles of funerary masks in the Iron Age, focusing on princely graves at archaeological sites in Trebenište, Ohrid “Gorna Porta” and Sindos in the Central Balkans. The study explores the diverse functions of these masks within burial traditions. A comparative method was used to identify shared and distinct elements in funeral customs and to analyze whether masks reflected the true appearance of the deceased. Findings suggest that funerary masks served as instruments of social elites, who leveraged mysticism and religious beliefs to maintain authority. Trade between Greece and the Eastern Hallstatt culture enabled elites to control the flow of goods, including votive offerings, which added layers of mysticism and transformed funerary rites into theatrical spectacles. In archaic Macedonia, masks were uniform in design, emphasizing ethnic identity over individuality. The standardized production suggests that craftsmen followed established traditions rather than aiming for personalized representation. Features such as prominent cheekbones or stylized facial elements were likely conventional artistic choices rather than realistic portraits. Overall, funerary masks played both symbolic and political roles, reinforcing elite status and cultural identity. Interpretations of these artifacts vary across modern archaeological perspectives, with some scholars emphasizing their role in social hierarchy, while others highlight their ritual significance. I aim to highlight the social and ideological significance of funerary masks.

**1036. OF GOLD AND GLASS. PERSONAL ADORNMENTS FROM WEST PONTIC NECROPOLEIS IN HELLENISTIC TIMES**

**Contribution format:** Oral  
**Contribution authors:** Mila Chacheva (National Archaeological Institute with Museum at the Bulgarian Academy of Sciences)

Thinking of personal adornments from the Hellenistic period inevitably leads to the picture of lavish jewellery sets found all over the Mediterranean. This period also witnessed a heyday in the production and distribution of glass beads and vessels throughout the ancient world. The investigations of the West Pontic Greek colonies and especially of their necropoleis indicate that they did not lag behind both these trends. Are the golden jewellery items merely adornments or is it possible to trace some other meaning beyond that? Then, are the strings of various glass beads and pendants bearing mainly protective functions? And what could be the possible interpretations when they occur together in the same context? Do these two materials – gold and glass – let us think of possible identities and political relations. The paper aims to illustrate some new and to revise some old evidence about the personal ornaments discovered in the necropoleis of three of the West Pontic Greek cities – Apollonia,

Mesambria and Odessos.

**542. MOTIVES OF THE DEAD AND THE MONEY OF THE LIVING. DEPOSITIONS OF WOMEN’S JEWELLERY IN THE ROMAN TOMBS FROM ROMANIA**

**Contribution format:** Oral  
**Contribution authors:** Hamat Cristina – Stefan Georgescu (Museum Of National History and Archaeology Constanta)

This paper will discuss several well-known female inventories, both national and internationally, dated to the Roman era and discovered on the territory of today’s Romania, in the necropolises of Tomis (Constanța), Callatis (Mangalia), Capidava (Capidava) and Drobeta (Drobeta Turnu Severin). By presenting the jewellery items, which are part of these inventories, we will try to clarify the motives behind these deposits, especially since we talk about special types of jewellery, in terms of artistic value and price. Also, we will present the motives and money that those left behind had, and the reasons that the deceased could have had for taking such pieces with him into the grave. The study of the inventories will also provide special association for items of jewellery with various objects belonging to the mundus muliebris. This cases, that we will use for this presentation, have been selected to provide a broader picture as possible for these different motifs, both for the living and the dead. As can be seen, we have civilian and military centres from the provinces of Moesia Inferior/Schythia Minor and Dacia, during the 1st-4th centuries AD., in order to discuss differences a special case in regard with the common motivation of the family left behind and those of the dead.

**395. LEUKAS-TYPE GOLDEN HAIR RING NORTH OF THE DANUBE, FROM A SALVAGE EXCAVATION ON THE ROUTE OF EXPRESSWAY DEX12 CRAIOVA-PITEȘTI (ROMANIA)**

**Contribution format:** Poster  
**Contribution authors:** Dragos Mandescu (Argeș County Museum, Pitești) – Alin Frînculeasa (Prahova County Museum of History and Archaeology, Ploiești) – Dragoș-Alexandru Mirea (“Horia Hulubei” National Institute for R&D in Physics and Nuclear Engineering, Măgurele | Bucharest Municipality Museum) – Monica Mărgărit (“Valahia” University, Târgoviște) – Mihai Constantinescu (“Francisc I. Rainer” Institute of Anthropology, Bucharest | Bucharest University) – Ioan-Andi Pițigoi (Argeș County Museum, Pitești) – Andrei Heroiu (SC Banat Archaeosave SRL, Timișoara) – Laurențiu Isăilă (Independent)

At the end of 2024, a Yamnaya burial mound was explored through a salvage excavation, at the eastern end of the Craiova-Pitești Expressway (DEX 12), near the village of Recea (Argeș County, at short distance south-east of Pitești city). The burial mound contained a single grave. The deceased (a subadult) had as grave goods a pair of hair rings, one of which (made of gold) belongs to the Leukas (Lefkada / Lefkas / Leucadia) type. The poster presents in detail both the in situ discovery and the results of the interdisciplinary approach on this special and not very common type of Early Bronze Age artefact north of the Danube, contributing to a better definition of aspects related to the formal, metallurgical, chronological correlations of this type of hair ring, and also to its distribution area. The excavation at Recea (including the subsequent interdisciplinary approach) is a valid example of good practices in salvage archaeology in Romania.

**595. MACEDONIAN BRONZES AS TOOLS USED TO CONSTRUCT A SOCIAL PERSON**

**Contribution format:** Poster  
**Contribution authors:** Tomasz Gralak (Institute of Archeology, University of Wrocław)

Macedonian bronzes mainly came from women’s graves dating to the Early Iron Age. The question arises: What role did they play during funeral ceremonies? Assuming they were similar to ancient Greek rituals, we can suspect the presence of similar events. The ceremony could last several days and begin with the public display of the body – prothesis. This type of ritual is performed in many cultures – members of a given community must see the deceased with their own eyes. In traditional societies, it is a kind of death certificate with all its legal consequences. After all, goods and interpersonal relations (social position) were inherited from the deceased. That is why it was essential to show who he was – including his status and spheres of activity. After being presented, the body of the deceased was transported to the burial place (ekphora) – often on a cart. Only the final part was the act of burial itself. . In general, the funeral ceremony was an elaborate spectacle aimed at strengthening the community (threatened by the loss of one of its members) by confirming the prevailing social hierarchy. Therefore, tools that had a substantial impact on emotions were used. The body of the deceased, constituting a kind of fetish equipped with shiny metal parts of the costume, had to be visible. Therefore, it was assumed that the Macedonian bronzes were props used to build a social figure. Individual artifacts showed the capabilities and functions of the person wearing them. These objects were material evidence of their owner’s life experience and



status. So, it was a kind of visual communication.

83 (NO) FEAR OF THE DARK, REFRACTED LIGHT, REFLECTIONS AND OBSTRUCTIONS. LOW-VISIBILITY CHALLENGES FOR 3D PHOTOGRAMMETRIC DOCUMENTATION IN ARCHAEOLOGY

Session theme: 3. Exploring methods in research, education and communication  
Session format: Regular session  
Session keywords: Photogrammetry, 3D documentation, Low-visibility, Underwater archaeology, Cave archaeology, Rescue archaeology  
Session organisers: Rault Estelle (Archéologie Alsace / umr 7044) – Kermeen Philippe (Heritage Consultant (Independent)) – Hostettler Marco (Institute of Archaeological Sciences, University of Bern)

SESSION ABSTRACT

Low-visibility conditions are a significant complication for archaeological recording in research and cultural management. In low-visibility conditions traditional documentation techniques often fail or encounter significant drawbacks. Photogrammetry can overcome these limitations by offering consistent and accurate results under adverse conditions, however it is not straight forward but may need adaption to individual context. Low-visibility environments can be differentiated into environments with challenging light-conditions and limited visibility caused by obstruction. Challenging light conditions include pitch-black environments, wet environments with a high degree of reflective surfaces and environments with light refractions, such as shallow underwater surfaces. Contexts with extreme light-shadow contrasts can also be counted as low-visibility environments for photogrammetric documentation. Limited visibility environments caused by obstruction include underwater contexts with high sediment and organic content in the water column, but also structures obscured by dense vegetation, obstacles which cannot be removed, such as scaffolding or telephone wires or contexts with limited visual range such as narrow architectural contexts or caves. All these environments call for different approaches to achieve better results. Although many projects have been realised under unfavourable conditions in recent years, there is a lack of knowledge transfer in the broader archaeological audience. This session aims at bringing together speakers with experience in the application of photogrammetric methods under unfavourable environmental conditions. We aim at presenting short project presentations focusing on the respective low-visibility environment, the challenges which were needed to overcome and the solutions applied. Discussion of time schedules and budgets are welcome, as are contributions maximising the use of Open-Source technology. We welcome contributions from research, rescue archaeology (commercial and public), and cultural heritage management. We envisage the publication of proceedings if interest and number of contributions allow for it.

CONTRIBUTION ABSTRACTS

396. LITTLE TO SEE: LOW VISIBILITY PHOTOGRAMMETRY OF A SUPERMARINE SPITFIRE WING IN DARWIN, AUSTRALIA

Contribution format: Oral  
Contribution authors: Philippe Kermeen (Cosmos Archaeology)

In late 2022 a Supermarine Spitfire wing was identified in East Arm, Darwin. The wing was discovered in a designated dredging area for the Darwin Shiplift Project (DSL). The low-visibility environment experienced by divers and the lack of visual comprehension of the structure poised a problem for overall information regarding potential extraction options. Using photogrammetry techniques in recording seafloor landscapes and three compact action cameras (Hero 8, 9, and 10), divers were able to record the entire structure with video. The recordings were rendered in Agisoft Metashape to reconstruct an image of the wing, facilitating an understanding of what sections were visible. Dredging of the wing to expose the furthest extent of debris was crucial for future extraction. The successful photogrammetry method had facilitated a continuous monitoring program to be implemented, able to observe the incremental changes in environment around the wing and to inspect any new structural components that had been exposed. The lack of published material on low-visibility photogrammetry prompted a review.

2170. SHALLOW WATER AND DIFFUSED LIGHT: PHOTOGRAMMETRY IN MARITIME ARCHAEOLOGICAL DOCUMENTATION

Contribution format: Oral  
Contribution authors: Savannah Bishop (Koç University | KUDAR Research Center)

From submerged coastlines to water-filled tanks to shadowy museum depots, maritime artifactual materials often reside in low-visibility environments. These conditions, especially when dealing with factors of light refraction and physical obstruction, can make photogrammetry modeling of these artifacts difficult. However, such challenging circumstances frequently necessitate creative approaches to documentation, where photogrammetry proves adaptable and effective. This presentation will address three maritime collections that illustrate how unfavorable environmental conditions impact the application of photogrammetry. These contexts include the documentation of the Yenikapı 23 ship timber as part of the Yenikapı Byzantine Shipwrecks Project, the maritime amphorae collection of the Minori Villa Romana e Antiquarium as part of the Maritime Survey of the Amalfi Coastline project, and the sunken remains of a potentially Hellenistic-era causeway as part of the “Alexander’s Causeway” project. Through this photogrammetric documentation of diverse cross-sections of maritime material unique contexts and challenges shape the way photogrammetry is applied. Each case presents unique obstacles ranging from waterlogged ship timbers and shallow-water sediment shifts to low-light museum storage spaces requiring tailored photogrammetric techniques. Examining these diverse maritime projects, we will discuss the strategies utilized to overcome these challenges, and how photogrammetry can be applied in response to specific environmental conditions.

400. STREAMLINED PHOTOGRAMMETRIC PROTOCOL FOR EFFICIENT DIGITIZATION OF LARGE ZOO-ARCHAEOLOGICA. COLLECTION

Contribution format: Oral  
Contribution authors: Brice Lebrun – Javier Sopesens Aixalà (Catalan Institute of Human Paleoecology and Social Evolution (IPHES-CERCA) | Area of Prehistory, Rovira i Virgili University) – Antonio Rodríguez Hidalgo (Unit Associated with CSIC, Department of Paleobiology, National Museum of Natural Sciences | Catalan Institute of Human Paleoecology and Social Evolution (IPHES-CERCA)) – Palmira Saladié Ballesté (Catalan Institute of Human Paleoecology and Social Evolution (IPHES-CERCA) | Area of Prehistory, Rovira i Virgili University | Spanish National Research Council, Institute of Archaeology-Mérida (CSIC-Junta de Extremadura))

This presentation introduces an innovative and streamlined photogrammetric protocol designed to rapidly digitize the large osteological reference collection of IPHES-CERCA laboratory under time-intensive constraints. Although not conducted in unfavourable low-visibility environmental conditions per se, the high volume of specimens—thousands of bones with diverse geometries, varying sizes, and complex morphologies—poses challenges analogous to adverse environments. Using cutting-edge frameworks like Apple’s RealityKit and custom-built Python scripts, The protocol optimizes 3D model generation by reducing computational time and minimizing manual parameter adjustments. Through the automation of repetitive tasks and the effective management of challenges associated with intricate bone geometries and reflective surfaces, the workflow efficiency is significantly improved, enabling the digitization of complex objects within minutes. Aligned with contemporary open-science principles, the protocol also includes open-access publication with standards-compliant associated metadata. In summary, this presentation outlines a practical approach to efficiently digitizing large osteological collections while emphasizing reproducibility and accessibility in 3D documentation.

1535. PLAYING WITH THE LIMITS IN PHOTOGRAMMETRY: DIGITIZING ARCHAEOLOGICAL GLASS IN 3D

Contribution format: Oral  
Contribution authors: Vanessa Espuelas (Universitat Autònoma de Barcelona)

The digitization of archaeological heritage has experienced significant momentum in recent decades, expanding the digital collections of museums, institutions, and scientific teams by incorporating increasingly a diverse array of materials. Nevertheless, a considerable proportion of these collections face the challenge of accurately documenting objects characterized by poor visibility, excessive transparency, or reflectivity. Even the best photographic study conditions cannot spare us from the whims of light reflections and refractions. This is especially true for the photogrammetric 3D capture of objects with particularly problematic surfaces, such as archaeological glass items. The optical properties of glass surfaces, characterized by their shiny and transparent nature, cause a multitude of phenomena, including partial reflections, anomalous light absorptions, and intricate alterations. The various redirections of light hitting the surfaces of these objects contribute to the distortion in the perception of the piece’s geometry in any of the current photogrammetry software. In this context, glass pieces represent one of the most challenging elements for photogrammetric capture. The presentation proposes a methodological approach to overcome these issues and generate realistic models of Roman glass tableware objects, based on extensive work in the acquisition, processing and publication of photogrammetric projects conducted over the past few years. The management of lighting during data capture is crucial. Additionally, tools to improve the accuracy in the subsequent photograph alignment will be explored. Moreover, photogrammetric processing steps will be discussed, along with their adaptation according to the distinctive lighting characteristics of each



type of glass to minimize geometric errors. Furthermore, we will not overlook post-processing work and texture reprojection to realistically emulate the transparencies and reflections of glass in digital environments. All of this will be presented alongside the results obtained on Roman glassware pieces.

316. ILLUMINATING THE SHADOWS: PHOTOGRAMMETRIC DOCUMENTATION OF PLEISTOCENE DEPOSITS IN TIBERIUS’ CAVE, ITALY

**Contribution format:** Oral  
**Contribution authors:** Francesco Bucci Casari – Francesco Lucchini – Caterina Fanucchi – Enza Spinapolice (Sapienza University of Rome) – Cristiana Ruggini (Direzione Regionale Musei Nazionali Lazio)

3D photogrammetry techniques offer an innovative and versatile solution for documenting archaeological contexts under low-visibility conditions, effectively addressing the limitations of traditional methodologies. Challenges such as the absence of natural light, visitor interference in tourist contexts, and the necessity of safeguarding vulnerable archaeological deposits are effectively tackled. The case study focuses on the Tiberius’ cave, located in Sperlonga along the Tyrrhenian coast of southern Latium, Italy. The site is renowned for its remains from the Roman imperial period but also presents evidence of an earlier Neanderthal occupation. It forms part of a broader system of caves attributed to the Pontinian facies, spanning from the Circeo promontory to Sperlonga and Gaeta. Within the Tiberius’ cave, residual Pleistocene deposits containing lithic industries and faunal remains represent a unique yet fragile heritage under threat from erosion and tourist activity. Here we present the solutions adopted to document these deposits accurately in a low-visibility environment, demonstrating how low-cost technologies can overcome complex operational challenges. The project underscores the critical importance of interdisciplinary approaches to preserving and enhancing archaeological evidence and highlights the pivotal role of 3D photogrammetry in the conservation and dissemination of endangered sites.

1829. SURVEYS IN APHOTIC ZONES : LASERGRAMMETRY AS A TOPOGRAPHIC AND PHOTOGRAMMETRIC SOLUTION FOR UNDERGROUND ENVIRONMENTS

**Contribution format:** Oral  
**Contribution authors:** Julien Quantin (Eveha - Etudes et valorisations archéologiques | UMR 5607 Ausonius - Université Bordeaux Montaigne)

The presentation will focus on the challenges of lasergrammetry for the study and analysis of archaeological sites/structures in an underground context. We will be highlighting the advantages of LiDAR systems for surveying underground structures that are subject to access and lighting difficulties, by proposing different methods illustrated by concrete cases and/or easily accessible tools. It will also be important to show the different ways in which these elements can be supported, and their specific uses: hand-held LiDAR, walking MMS, scanner on stands and UAS LiDAR. Most of these new methodologies have been developed as part of the TNT&MINES research program, in partnership with various engineering schools, and are the subject of recurrent tests on wells and mining sites. It will thus be interesting to compare the possibilities offered by these lasergrammetric methods with those of conventional photogrammetry, and to also indicate their contribution to the topographical study of a site in a confined environment.

87 INTERTWINED NARRATIVES: THEORY AND PRACTICE IN COMMUNICATING STORIES

**Session theme:** 6. Intertwining archaeology, heritage, and museums  
**Session format:** Regular session  
**Session keywords:** Narratives, Storytelling, imagination, Public communication, Voices  
**Session organisers:** Harold Mytum (University of Liverpool) – Samantha Reiter – Matthew Walsh (National Museum of Denmark) – Morgan Schelvis (University of Amsterdam)

SESSION ABSTRACT

As Shanks wrote on “the archaeological imagination”, archaeologists do not discover the past; we work with what remains. If we were to be factual about it, we would say that archaeologists synthesize incomplete data about the past into a meaningful and appropriate whole. If we were to tell a story, we would say that archaeologists bridge gaps in the past to give voice to its story, we use intertwined strands of evidence to create narratives that connect past and present, data and interpretation ... For an adventurous discipline whose raison d’être relies on the discovery of new remains or unknown information about the distant past, archaeology determinedly

produces communication which is often dry and boring (or, unfortunately both put together!); the majority of our communication efforts are self-oriented; that is to say, they are written for other archaeologists. Unfortunately, we too often leave outreach efforts in the hands of media professions who “interpret” our message for us and are removed from the enthusiasm for our subject and its relevance for today’s world with which we burn. We invite speakers to submit papers, readings or other examples of alternative forays into the relationship between archaeology, narrative, and the archaeological imagination. These could include reflexive accounts of science novels, illustrations of the utility of the archaeological imagination, critical studies of the portrayal of archaeology/archaeological research in the media, or something entirely other. We welcome all rigorous studies of alternative explorations of our shared past.

CONTRIBUTION ABSTRACTS

192. SCIENCE NOVEL AND ARCHAEOLOGY: A NEW DUO FOR PROMOTING RESEARCH

**Contribution format:** Oral  
**Contribution authors:** Christiane Angibous-Esnault – Jean-Olivier Gransard-Desmond (ArkéoTopia)

Combining literary fiction and archaeological reality, that’s the challenge of the science novel in archaeology. But what exactly is a science novel? Does it constitute a literary genre, or a practice developed by writers interested in archaeology? Authors and researchers have already been asking this question for a decade, such as the Fiction meets Science research group born in 2014. However, no definition has yet emerged. That’s why dictionaries and encyclopedias like Wikipedia remain silent on the subject. Despite their silence, there are unique characteristics that set apart a work of science novel. One is the requirement for extensive expertise in the specific field, whether it’s biology, physics, or any other. In the case of archaeology, an archaeological find must be chosen to guide the story. This constraint forces the author to review the literature and consult relevant experts before writing the fiction itself. More than in any other genre, a science novel often requires an advisor who is familiar with the field, as is the case with films. The author must integrate the story into the scientific process, while respecting its narrative codes. This means avoiding confusion between the subject and the object. A novel dealing with prehistory fails to qualify as a “science novel” if it ignores the scientific approach, instead focusing on the results of research into the prehistoric period. Through the experience of children’s author Christiane Angibous-Esnault and the adventures of her hero Augustin, born in 2008, we propose a definition of this literary genre, along with a list of distinguishing features. We’ll discuss its impact on the popularization of archaeology, and its need for dissemination, which will enable the voice of research to be better heard on such difficult subjects as research integrity, looting, the importance of sources, and so on.

985. BROOKE AND BRIDGEWATER – A CLASH OF WILLS

**Contribution format:** Oral  
**Contribution authors:** Harold Mytum (University of Liverpool)

Archaeologists tell stories based on the evidence they find and the assumptions and deductions they make about the past. The presentation investigates how, in a historical period, a range of sources can be utilised to form and support a narrative that provides an explanation of the archaeological evidence, set in interpersonal relationships and wider cultural expectations and aspirations. This is a first-person account related to the dispute between Sir Christopher Brooke of Norton Hall and the Duke of Bridgewater who wished to build his Bridgewater canal between Manchester and the mouth of the river Mersey over Sir Christopher’s land at Norton Hall, site of the medieval Norton Priory. The presentation is a first-person account, given from Sir Christopher’s perspective, but the Powerpoint slides behind the presenter will provide the ‘footnotes’ and evidence – documentary, cartographic and archaeological – that provides the scaffolding for the story being told (though alternative stories could be told by archaeologists interpreting our evidence differently, or those people at that time who held different views and perceptions). The paper encourages us to reflect on the ways in which entangled data of various kinds can be woven into a narrative with empirical fixed points joined by inferential threads.

1481. RECONSTRUCTING THE PAST: CHALLENGING OR REINFORCING STEREOTYPES. GENDERED NARRATIVES IN CZECH ARCHAEOLOGICAL EXHIBITIONS

**Contribution format:** Oral  
**Contribution authors:** Olga Lechyčová (Institute of Archaeology of The Czech Academy of Sciences, Brno) – Klára Matulová (Institute of Archaeology of The Czech Academy of Sciences, Brno)

Archaeological exhibitions are designed to communicate knowledge to the public; they serve as a bridge between the past and the present, offering insights not only into material culture and historical events but also into the social structures that formed them. From a gender perspective, numerous European studies show that many archaeological exhibitions present a skewed view of the past rather than an accurate reconstruction based on available



evidence. Through quantitative analysis, we explore something previously unexplored: Do Czech museum exhibitions—both old and new permanent prehistoric displays—perpetuate stereotypical narratives about the roles of men and women? Even though many artefacts were created by, associated with, or depict women, their roles and lives are frequently overlooked. By analysing both visual elements and accompanying texts, we examine how gender relations in the past are presented to the public and to what extent women are made visible in these exhibitions. At a time when gender discourse has become entangled in culture wars, we often encounter arguments based on stereotypes that ascribe rigid social roles to individuals—roles claimed to have accompanied humankind “since time immemorial”. Archaeology is particularly vulnerable when used to legitimise specific cultural models of social organisation in the present. Their advocates often equate “tradition” with the distant past, selectively shaping it through fragmented and stereotyped facts to prove the universal validity of such models. It is essential to continually highlight these fragile aspects of archaeology, keep reflecting on the persistence of stereotypical thinking, and challenge the projection of contemporary social patterns onto reconstructions of the past. Equally important is examining how exhibitions convey scientific knowledge and shape public perceptions of history. A museum should not only educate but also provoke reflection on the ambiguities of the past, fostering dialogue about the values we carry into the present.

1224. KANSALA KUMO: SINGING ARCHAEOLOGY IN GUINEA-BISSAU

**Contribution format:** Oral  
**Contribution authors:** Sirio Canós-Donnay (Universitat de València)

For hundreds of years, the jeli or griots have been the memory of Sudanese West Africa, singing historical epics and preserving them for future generations. In southern Senegambia, a key element of these epics is the fall of Kansala, last capital of the Kaabu Kingdom (13th-19th C), which features heavily in Senegambian collective imaginaries but until recently had never been archaeologically studied. In early 2024, we conducted the first excavations at the site (currently in Guinea-Bissau), which revealed a complex urban pattern and confirmed many of the local oral traditions. Given Kansala’s prominent place in local epic narratives we wanted to use this project to rethink the relationship between archaeologists and griots, from a uni-directional use of the latter as ‘sources’ to one of dialogue and knowledge co-creation, as well as exploring the potential it offers for public engagement and story-telling. We thus invited two families of griots (the Djabate and the Galissa) to visit the excavations, ask questions, and write songs about the archaeology and its connection with the griotic repertoire, including a sang version of the final excavation report. These were then played at various events in Guinea-Bissau, Senegal and the Gambia, as well as shared widely across social networks and became powerful tools in community outreach and narrative-building.

2204. LIVING PREHISTORY: PERFORMING, TASTING, AND EXPERIENCING OLD NARRATIVES

**Contribution format:** Oral  
**Contribution authors:** Sofia Figueiredo-Persson (CHAM- NOVA University, Lisbon | Iconictheory Lda) – Joana Valdez-Tullett (Durham University | Wessex Archaeology Ltd)

Prehistory constitutes 99% of human existence, yet it remains one of the most challenging periods to communicate. The vast timescales, absence of written records, and fragmented material traces make it difficult for contemporary audiences to connect with it. However, understanding prehistory is essential, as it shaped many of the fundamental aspects of human life. The challenge, therefore, is to bridge this temporal and cognitive gap, making it more tangible, relatable, and engaging. This paper explores how storytelling through rock art can be expanded and reshaped through theatre, photography, culinary experiences, and books. By merging archaeology with performance, visual arts, experimental reconstruction, and narrative-driven publications, we present case studies from Portugal and the British Islands, where prehistoric narratives were transformed into interactive and immersive experiences. The ImaginARTE project, for instance, used human representations in rock art as a starting point to challenge contemporary notions of beauty and identity through photography. Meanwhile, theatrical performances and dramatized re-enactments brought prehistoric imagery and myths to life, fostering deeper emotional connections with the past. Additionally, books provided an alternative medium, where an inspirational blend of objective recording, subjective analysis, and narrative interpretation allows us to travel through prehistoric societies, offering new ways of imagining their realities. By embracing multisensory and co-creative approaches, this paper argues that archaeology can transcend disciplinary boundaries, opening up new ways of engaging with and experiencing deep history.

2503. HOW ARCHAEOLOGICAL OUTREACH BENEFITS FROM DIALECTICAL COLLABORATION

**Contribution format:** Oral  
**Contribution authors:** Dominik Lengyel (BTU Brandenburg University of Technology Cottbus-Senftenberg) – Catherine Toulouse (Lengyel Toulouse Architects)

The intertwining of disciplines is an extremely fruitful endeavour if the mutual needs are taken seriously. For working with the media, it is not enough to let them interpret the archaeological messages. A dialectical approach is needed. The reason it works so well with architects is that they too work with uncertainty: the process of designing begins with a broad idea, comparable to a tentative hypothesis in archaeology. The more finds there are, or in architecture, the more ideas are incorporated into the design, the more concrete the building, or the visualisation of the archaeological hypothesis, becomes. The term ‘reconstruction’ is misleading, because a reconstruction is a repeated construction and this would not be an interpretation, but in most cases pure fantasy. Archaeological hypotheses are usually formulated verbally and make extensive use of the capacity for abstract formulation. Translating this abstraction into images is indeed the core skill of architects working in design. Like archaeologists, architects seek to synthesise incomplete data about the past into a meaningful and appropriate whole. This does not preclude interpretation, but in the dialogue it creates narratives that link past and present. It is not a question of whether there was an architect, as we understand the role today, but that there must be an intention behind every action. Giving form and image to this intention is the competence of architects. This makes communication accessible to the public, while at the same time remaining self-orientated through its proximity to science. Such illustrations stimulate the architectural and archaeological imagination, and also allow for alternative explorations. This is because the subtle effect of architectural visualisations, despite their abstract geometry, is able to provoke further thought and advance research in both disciplines. The paper illustrates this methodology with prominent projects from collaborations with numerous museums, research, cultural and educational institutions.

751. AR(T)CHAEOLOGIES: THE PLEAURES AND PITFALLS OF ARCHAEOLOGICAL INTERPRETATION AND ILLUSTRATION

**Contribution format:** Oral  
**Contribution authors:** Matthew Walsh (National Museum of Denmark) – Marianne Moen (Museum of Cultural History, UiO) – Eric Carlson (Desert Archaeology, Inc.)

Archaeologists have long relied on illustrations to visualize objects and indeed as an aid in reconstructing the past as a living thing. This often involves extensive – even over-use – of interpretive license. As an exercise, the development of archaeological illustration draws a fine line between accuracy and imagination. While fraught with potential problematics, when approached rigorously and collaboratively, archaeological reconstruction can be a beautiful thing, and an unparalleled form of inspiration and dissemination. However, the points of ‘rigor’ and ‘collaboration’ just mentioned cannot be underemphasized. This presentation offers a glimpse into the collaborative process between archaeologist and artist specifically as it pertains to developing and presenting accurate, engaging, and evocative visual interpretations of the past. It highlights some of the best practices established through the presenters’ own works together as well as offering some hopefully useful insights into ways in which objects, their biographies, interpretive frameworks, and the narratives they combine to communicate can be brought to life.

1274. NAVIGATING THE PREHISTORIC FOG: AN ILLUSTRATED FICTION APPROACH TO ROMAN CONQUEST, THE SCOTTISH IRON AGE AND ARCHAEOLOGICAL INTERPRETATION

**Contribution format:** Oral  
**Contribution authors:** Samuel Scott-Moncrieff (University of Edinburgh)

This paper draws literal inspiration from this session’s abstract: specifically, the “narratives that connect past and present, data and interpretation” and the “illustrations of the utility of the archaeological imagination”. These ideas will be explored through ‘graphic novel’ style vignettes, depicting the interplay between ancient sources, archaeological evidence, and archaeological interpretation in relation to the Roman invasions of Iron Age Scotland (1st-3rd centuries CE). Case studies will be unpacked by depicting Roman viewpoints, conceivable Iron Age pasts and archaeological interpretations in the near past and present. As an example, the destruction of brochs (dry-stone Iron Age roundhouses) in Southern Scotland during the second century CE has been attributed by some to the Antonine re-invasion of Scotland (139-142 CE) partly based on terse Roman descriptions. However, the archaeological evidence for Roman violence is limited, and alternative indigenous explanations can be made. Indeed, the prehistoric (or proto-historic) non-literate societies that lived in Iron Age Scotland maintained diverse relationships with the Roman empire. Some appear to have been clients, others belligerent adversaries, whilst still more probably steered a middle path. This paper will seek to depict the Scottish Iron Age’s complexity in a pictorial style that is legible and engaging for a wide range of audiences.



1243. ‘ARCHAEOLOGYSTORIES.COM,’ A PROPOSAL TO ESTABLISH A DIGITAL PLATFORM TO REACH WIDER AUDIENCES

**Contribution format:** Oral  
**Contribution authors:** John H Jameson (International Committee on Interpretation and Presentation - ICOMOS | EAA StoryArch Community Network)

In contemporary academia, much emphasis is placed on ethics and scientific rigor when publishing scholarly articles. However, the communication of archaeological knowledge to a wider public is often a neglected aspect of our professional responsibilities. Digital publications have revolutionized the way information is disseminated and consumed. Digital publications such as ‘Sciencefeatured.com’ provide an online model and mechanism for professional/non-specialist balancing to reach wider audiences. The goal is to promote and foster greater public interest and appreciation with the potential of greatly expanding archaeology’s reach to various non-specialist sectors of society. A similar platform to ‘Sciencefeatured.com’ is proposed to be established, which might be called ‘ArchaeologyStories.com,’ that would achieve this balance by collaborating with experts in the field to produce content that is both informative and accessible. A possible approach would be for articles to be nominated to a lead person or panel which would review them for acceptance and then assign them to a writer/archaeologist in consultation with the article author, ensuring that the information in the feature story is accurate and up to date. The platform would be dedicated to providing the archaeology community and the public with open access to significant archaeological and historical research. The platform would provide references and links to original research papers, allowing interested readers to delve deeper into the subject matter.

1580. THE STRENGTH OF NARRATIVES FOR DIGITAL TECHNOLOGIES: THE CASE STUDY OF BAI AE IN THE “INFINITI MONDI” PROJECT OF NAPLES

**Contribution format:** Oral  
**Contribution authors:** Maria Taloni – Alfonsin. Pagano – Crescenzo Violante – Ivana Cerato – Enzo D’Annibale – Domenica Dininno – Danilo Paolo Pavone (Institute of Heritage Science - National Research Council of Italy)

The Metaverse Laboratory, in the project “Infiniti Mond i Naples Innovation City” House of Emerging Technology, is coordinated by CNR ISPC and it is organized as an experiential pathway focusing on emerging technologies. It aims to provide a multisensory “journey”, presenting use cases related also to Archaeology. One highlight is the submerged roman city of Baiae, an underwater archaeological park in the Gulf of Pozzuoli, resulting from the ongoing phenomenon of bradyseism. Its unique nature has enabled its reinterpretation through specific digital narratives and emerging technologies showed in “multisensory islands”. The first, Online Metaverse, offers the 3D reconstruction of the submerged archaeological remains, based on ultra-high resolution acoustic remote sensing survey. It allows users to navigate the virtual environment with a mouse click or smartphone tap, thanks to ATON 3D visualization framework. Users can discover the narrated history of the archaeological site and the studies conducted for documenting and analysing the underwater cultural heritage and the geological characteristics of the seabed. The second island, AR Metaverse, allows users to explore a lead aqueduct pipe found in the viridarium of the Villa dei Pisoni. The ZSpace software, customised in its interfaces and usability, allows users to interact with the ultra-high resolution digital model, created by photogrammetry, using a virtual pencil tracer, listening to historical and archaeological metadata. In the fourth, Panoramic Metaverse, the users can navigate the gulf using a rowing Olympian simulator, adapted for the project, culminating in a virtual immersion into the seabed: a series of floating devices activate the narrative, which is divided into scenes designed for voiceover narration. The Lab emphasises the importance of designing experiences that mix storytelling and sensory immersion, creating spaces where users can learn and be engaged: embracing storytelling and drama, each interaction leaves a lasting impression on the richness of cultural heritage.

2266. “AND MY TROWEL!” COMBINING FANTASY RPG STORYTELLING AND PODCASTING AS ARCHAEOLOGICAL OUTREACH

**Contribution format:** Poster  
**Contribution authors:** Matilda Siebrecht (APN | EXARC) – Ashleigh Airey (APN)

The benefits of using storytelling as an approachable and accessible framework for the dissemination of archaeological information are becoming increasingly accepted by the academic community. In spite of this, many archaeologists remain unsure of the possibilities when it comes to both the formats and platforms available for such outreach. In this poster, we present an example that successfully combines the format of a role-playing game (RPG) with the platform of an audio podcast. “And My Trowel” is a podcast series produced by the Archaeology Podcast Network. Each episode places the two hosts - often with the addition of expert guests - as professional archaeologists in a fantasy world, and aims to explain archaeological method and theory through the lens of fantasy fiction. By combining the accessible and approachable context of a fantasy world with accurate and real

archaeological information, the podcast demonstrates the strength of storytelling as a framework for science communication.

88 RECONSTRUCTING THE HISTORY OF FIRE, CONTROL AND APPLICATION OF THERMAL ENERGY AND ITS TECHNICAL, SOCIAL, SYMBOLIC AND ENVIRONMENTAL CONSEQUENCES

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Discussion session  
**Session keywords:** Thermal energy role in human evolution and adaptation strategies, Thermal energy role in exploitation of natural resources, Thermal energy role in infrastructural and super structural changes, Thermal energy role in diversification changes and reproduction of social organization, Thermal energy role in environmental changes and its social consequences , Thermal energy role in symbolic and social reproduction contexts, as identity, art, religion, initiation and mortuary rituals including also sociopolitical and economic organizations  
**Session organisers:** Ramiro March (Umr 6566 CNRS) – Raquel Pique Huerta (Universitat autonoma de Barcelona) – Begoña Soler Mayor (Universitat de Valencia) – Pauline Hart (umr 6566 Cnrs)  
**Session discussant:** Stephen J. Pyne (Arizona University)

SESSION ABSTRACT

The reconstruction of the history of the control and application of thermal energy to the transformation of matter opens a window on the relationship between this cultural resource and their relation with the modes of production and social reproduction in the history of humanity from societies from hunter gatherers to state societies. This session will deal with this relationship between man and fire from archaeological examples of different human societies from the past including different societies, continents and paleoenvironments and their relationship with our current global situation. Our session will be dedicated to the discussion, enrichment and development of this theme through the presentation of different problematics and results from the archaeological context. Contributions will be presented in the form of communications and going to be part of a future collective publication related to research that have highlighted, through the analysis of archaeological data, the social impact of thermal energy control. Communications may relate to many rich and different topics, such as the use of fire, the different material productions related to the use of thermal energy and their relationship with the different modes of production, social organization and social reproduction including activities related to the symbolic or super structural world which manifest the influence of the use and control of thermal energy and its consequences in the different domains mentioned in the title of our session. The presentations could be be related to technical, productive, social, symbolic and environmental point of view, and related to our current situation in relation to control, use of thermal energy and it’s role with our socials systems. If our session can attract colleagues from other disciplines, I would be open to them.

CONTRIBUTION ABSTRACTS

572. THE HUT IS WARM BUT NOT ON FIRE: FIRE EXPERIMENTS AND FUEL MANAGEMENT IN MOLÍ DEL SALT (LATE UPPER PALEOLITHIC)

**Contribution format:** Oral  
**Contribution authors:** Andrés Robledo (Iphes-Cerca | Idacor-Conicet) – Bàrbara Mas (Université Côte d’Azur | SERP-Universitat de Barcelona) – Manuel Vaquero – Susana Alonso – Ethel Allué (Iphes-Cerca | URV-Departament d’Història i Història de l’Art)

In this work we will explore fuel management strategies and fire use adaptations in enclosed dwellings during the Paleolithic, with a focus on campsite scenarios such as the Molí del Salt archaeological site (Tarragona, Spain). Understanding the benefits and consequences of the use of fire inside a hut will allow us to explore the decisions behind fuel choices and the eventual health consequences of their use. Fire technology is evidenced in Moli del Salt by charcoal remains from numerous hearths left by several Late Magdalenian occupations (ca. 13-15.48 kyr BP), suggesting a preference for Pinus sylvestris type used as fuelwood, which was dominant in the local landscape during the Last Glacial. Other taxa, such as Juniperus, Prunus, Rhamnus cathartica/saxatilis, could have been used for other purposes, such as to smoke rabbit skin and to obtain pigments (Allué et al. 2010; Mas et al. 2021). For this, in the FLA HME project we developed a fire experiment protocol that allowed us to evaluate the



awareness of people in the past regarding the use of fire and their emissions. In this opportunity, we present the first set of six fire experiments made during winter in 2023 inside an experimental hut built for this purpose. Construction of the hut was made according to archaeological interpretations from engravings (García-Diez et al. 2015) and ethnographic references. A structure with a diameter of 3 metres and a height of 2 meters was built with *Corylus avellana* and covered with *Pinus sylvestris* green branches gathered in the nearby mountains. Results of these experiments provide a unique tool for understanding fire use in small, enclosed scenarios such as a hut; but also contributes to the study of human adaptations to the use of fire by relating fire emissions to health consequences, as well as dwelling situations.

627. WEIGHING PROS AND CONS : GAINS AND CONSTRAINTS OF CHERT HEAT TREATMENT DURING UPPER PALEOLITHIC

**Contribution format:** Oral  
**Contribution authors:** Julie Bachellerie (uniarq | UMR 5608 - traces) – Miguel Biard (INRAP Centre Île-de-France | UMR 8068 - temps) – Mathieu Lejay (GéoArchÉon SARL | UMR 5608 - traces) – Pierre Bodu (UMR 8068 - temps)

The heat treatment of chert is a deliberate technical process that alters the rock’s mechanical properties. It has been documented across various chrono-cultural contexts and environments, and its inconsistent use throughout the Palaeolithic and Neolithic raises questions about the conditions and factors that influenced its adoption, spread, and occasional rejection by certain groups Focusing on the Solutrean as a case study, this research examines the advantages and constraints of heat treatment from a techno-economic perspective. This approach explores multiple aspects of the technique, including the specific heating methods used. Alongside insights gained from the techno-economic study of lithic industries and archaeometric analyses of Solutrean lithic collections (Bachellerie, 2022), new preliminary experimental data have recently been collected and will be presented here. These findings refine our understanding of the technical and economic investment required for chert heat treatment in a Palaeolithic context, as well as the pyrotechnic know-how involved. They also lay the groundwork for a larger, more ambitious experimental project currently under development.

935. HEATING STONE TECHNOLOGY IN EUROPE

**Contribution format:** Oral  
**Contribution authors:** Pauline Hart (Chercheur associé UMR 6566 CReAAH (University of Rennes))

Hot rocks are regularly discovered in European archaeological sites. The precise functions of these elements, deliberately exposed to fire and then used for indirect heating, have still to be determined and are undoubtedly multiple. The corresponding hearths, called « cooking stones pits », « structures à pierres chauffées » in France » or « Koch(stein)gruben », « koge pits », « kokgrop » and « kokegropprojection » in Germany and Northern Europe, come in a wide variety of shapes. But dozens or even hundreds of them can also be found in standard form on sites often multi-phase and that cannot be identified as classic housings due to a lack of other domestic remains. It reveals the existence of a heating stone technology from at least the Mesolithic to the Roman period, but these sites, which vary in number from period to period and transcend cultures and societies, also seem to crystallise an extra-domestic, collective and social behaviour around this technology, on a European scale. The internal logic of the sites must be studied, from the organisation, functioning and function of the hearths to their rhythm of use. From a diachronic and anthropological perspective, we can also question the mechanisms by which the sites emerged and were maintained, the links between them chronologically and geographically, the rate at which they were visited and their relationship to other types of archaeological sites. To this end, we can explore the concept of « convergence » induced by « tendency laws » developed by A. Testart and A. Gallay, or of « persistent place » defined by S. H. Schlanger as a conjunction of particular human behaviours accomplished in a particular landscape.

1087. RECONSTRUCTING THE HISTORY OF FIRE AND ITS TECHNICAL SYMBOLIC AND ENVIRONMENTAL CONSEQUENCES EPISTEMOLOGICAL AND METHODOLOGICAL ASPECTS

**Contribution format:** Oral  
**Contribution authors:** Ramiro March (Umr Creaah 6566 CNRS)

THis oral presentation is destinate to our discussion session concentrate wit. the RECONSTRUCTING THE HISTORY OF FIRE AND ITS TECHNICAL, SOCIAL, SYMBOLIC AND ENVIRONMENTAL CONSEQUENCES and the epistemological and methodological aspects. : the will be a presentation about he history of fire through archaeology reconstruction and its social and anthropological significance in human history dicussing about epistemological and methodological aspects. The reconstruction of the history of the control and application of thermal energy to the transformation of matter opens a window on the relationship between this cultural resource and the dynamics of production and social reproduction in the history of humanity from societies from hunter gatherers to state

societies. This presentation will deal with this relationship between man and fire from archaeological examples of different human societies from the past of South America and other continents and their relationship with our current global situation. including the relationship between man and fire from archaeological examples of different human societies from the past of South America and other continents and their relationship with our current global situation. The reconstruction of the history of the control and application of thermal energy to the transformation of matter opens a window on the relationship between this cultural resource and the dynamics of production and social reproduction in the history of humanity, from hunter-gatherer societies to state societies

942. FIRE AND FOOD: DAILY LIFE IN A RURAL CHIMU VILLAGE IN THE VIRU VALLEY, PERU

**Contribution format:** Oral  
**Contribution authors:** Feren Castillo (Université de Rennes | Universidad Nacional de Trujillo) – Ramir. March (CReAAH, CNRS) – Oswaldo Ezet. – Astrid Vergara – Zafiro Vilchez – Arturo Marín – Luz Monzón – Kelly Castañeda – Diego Huaccha – Geanpiero Montenegro (Universidad Nacional de Trujillo)

The Chimu kingdom was a society that developed between 1050-1470 AD, from its capital Chan Chan (located in the Moche Valley) they controlled a vast territory on the north coast of Peru. In this conference we show the first research results in a rural Chimu village located north of the Viru River. The village is made up of 73 houses connected by paths and a system of terraces with stairs that allow connectivity within 76 hectares. At the top of Cerro El Diablo, they built their most important administrative center. On the slopes are located the residences of the middle classes, while in the lower parts the groups of farmers dedicated to the cultivation of corn, cucurbits and beans would have settled. The use of combustion structures is very similar in all the houses, which served to cook products based on proteins from camelids and terrestrial gastropods. These data show the daily life of this village, whose subsistence was self-sustaining.

2070. THE RAW AND THE COOKED: TELL SETTLEMENTS AND PYRO-OBJECTS IN THE GUMELNITA TRADITION

**Contribution format:** Oral  
**Contribution authors:** Dragos Gheorghiu (Doctoral Studies, National University of Arts - Bucharest)

The Chalcolithic in the Lower Danube region in the 5th millennium BC is characterized by the appearance of compact and fortified tell-settlements, with a spatial organization tending towards orthogonal forms, and whose frequent burning was due to various causes. During their construction, tell-settlements functioned as attractors of various materials of the local landscape, creating a culturally structured scenery, in which the raw materials were subject to geometry and cultural processes. The fire was encapsulated in open or perforated ceramic containers that allowed the control of air and subsequent control of thermal energy due to the physical principle of air-draught. There was a relationship of analogy of forms between these pyro-objects and the form of dwellings and [less frequently] of the settlements. The compact spatial organization of the tell-settlement also created air-draught effects during atmospheric disturbances, allowing the widespread burning in case of fires. After the consumption of the organic materials of the constructions, the settlement became a ceramic object and abandoned. People returned after a period, acquired new raw materials, and dwelt a new settlement, which burned in turn. This succession of raw and cooked materials led in many cases to the appearance of a symbolic landscape in the form of artificial mounds. Cooking raw material is a thermally transformative, symbolical process, and in this perspective the present paper will discuss the analogies and the functional and symbolic relationships between different pyro-objects and the spatial organisation and combustion of the tell-settlements.

89 GENDER, SEXUALITIES AND VIOLENCE IN THE ANCIENT WORLD MATERIAL CULTURE

**Session theme:** 2. Intertwined Epistemologies: Transcending the Data – Theory Divide  
**Session format:** Discussion session  
**Session keywords:** Ancient World, Classical Antiquity, Gender Archaeology, Genders and sexualities, Violences, Gender relations  
**Session organisers:** Tais Pagoto Bélo (University of São Paulo) – Sarah Lino Fernandes Azevedo (Federal University of Bahia) – Erica Angliker (ArcheoPaideia)



**SESSION ABSTRACT**

This session aims to bring together researchers with topics on gender in material culture of the Ancient World, focusing on the diversity of sexualities and violences. In ancient societies, it is evident that dominant discourses on gender constructed categories such as “woman” and “man” which were hierarchically related, creating a sexualized violence that is inseparable from the notion of gender. Hence, it is necessary to question whether nowadays we analyse past societies based on our own categories of gender, sexuality and violence. For instance, how do we define what sexual crimes are today? What were sexual crimes to the ancient societies? In the Roman world, rapes of women appear as a mark of founding myths, and rapes of men were common as a form of punishment, such as in the case of adultery. Representations of violence are demonstrated in objects from Antiquity, and some of them reinforce the ideological discourse of gender binarism, that make us think about of how “gender” operates in societies with a variety of violence? Ancient cultures can be a fruitful field of discussion, because they can challenge our binary conceptions of gender. In addition, it brings reflections on the notion of violence itself. Studies on these themes help us to think about strategies against violence nowadays, showing that violence is historically constructed. In this way, our aim is to have critical and transdisciplinary remarks about material culture that indicate discourses of power, gender relations, violence and sexualities. In this sense, we wonder how Archaeology can contribute to rethinking genders, sexualities and violence in ancient times, through a perspective of subaltern and “from above”, as well as in a decolonization point of view. Thus, we welcome papers that explore gender hierarchies, sexual crimes, binarism and non-binarism, physical and symbolic violence, and others.

**CONTRIBUTION ABSTRACTS**

**155. MYTHOLOGICAL RAPE IN A PUBLIC SETTING – LEDA AND GANYMEDE ON THE LAS INCANTADAS OF THESSALONIKI**

**Contribution format:** Oral  
**Contribution authors:** Andrea Nyholm (Lund university)

Rape is a common theme in Greco-Roman mythology. It is a central aspect that often results in evolution or revolution and can explain the unexplainable, such as the changing of the seasons. This paper presents a case study from my ongoing doctoral project in which I consider depictions of myths containing rape in Roman material culture of the Republican and Imperial ages. The aim is to explore how the depictions of these myths were understood by Romans across different social strata. For this purpose, I have chosen four myths: The rape of Europa, The rape of Ganymede, Leda and the swan and the rape of the Sabines. Depictions of these myths are plenty in a large range of material, from small scale decorations on oil-lamps and gemstones to reliefs and sculptures to skilful wall-paintings and mosaics, and indeed on public monuments. One such monument is the so-called Las Incantadas, once to be found near the Roman agora of Thessaloniki, today housed in the Louvre. This ill-preserved 2nd century CE building bore at least five sculpted pillars, one of which depicted both Leda and Ganymede, as well as their respective avian versions of Zeus. In this paper, I will explore the implications of depicting and viewing myths of rape in a centrally located and public monument, such as the Las Incantadas. I will place the depictions of Leda and Ganymede in the context provided both by the erstwhile location of the monument, as well as by the other depictions of mythological figures on the remaining pillars, so as to understand the intentions of the creator and the experience of the viewer, of the Las Incantadas.

**25. STUPRUM AND HERITAGE ON BOUDICA’S REBELLION**

**Contribution format:** Oral  
**Contribution authors:** Tais Pagoto Bélo (University of São Paulo)

This work is about the violence perpetrated on Boudica, queen of the Iceni, and her daughters, during the Roman invasion of Britannia, around 60/61 AD. The history written by Tacitus and Cassius Dio outlines that after the death of king Prasutago, Boudica’s husband, Rome came to charge on the contract made between them, in which half of the Iceni’s land would go to Rome and the other half to their daughters. Boudica didn’t accept and she ended up being flogged and her daughters raped. The definition of stuprum will be presented to delimit the magnitude of such acts, and an allusion will be made with the rapes of Roman origin myths to correlate them. The event that happened to Boudica and her daughters is the worst kind of humiliation, not only because of the testimony of imperial ferocity, but because of the exposure of a woman recognized for despising the Romans. The rape was especially significant and degrading for her daughters and the royal house of Prasutago. The act demonstrated a subjugation of these women to Roman officials. The material culture presented will be that related to the memory of the tragedy of these acts, in other words, the memory of suffering and misfortune, which raises controversial concerns in history. It will be the memory impregnated in its statues, stained glass and museums belonging to the cities of Norwich, Colchester, London, St. Albans and Cardiff. There is also the memory of women’s groups such as the Suffragettes, with their posters of vindications and actions next to the statue of Westminster. Boudica’s memory raises matters that are pertinent to women in general, as she is a female symbol

of strength and struggle, since she didn’t give up facing adversity.

**1922. A POSTHUMANIST FEMINIST APPROACH TO THE APOTROPAIC POWER OF THE GORGON IN THE ANCIENT MEDITERRANEAN (7TH-4TH CENTURY BCE)**

**Contribution format:** Oral  
**Contribution authors:** Eloise Jones (University of Liverpool) – Sera Yelözer (Koç Üniversitesi, ANAMED)

This paper examines the use of the gorgon as an apotropaic symbol in the material culture of the ancient Mediterranean from the 7th to 4th century BCE, and the way that this is contextualised by a mythology in which male violence and the fear of the monstrous feminine are inextricably linked. By applying a posthumanist feminist approach to the figure of the gorgon, we decentre it from a dualistic, male-centred understanding of being. In doing so, we consider how this hybrid figure defies the binary of a human versus non-human world; she is simultaneously both and neither, and this liminality is crucial to her power. This in turn enables us to ask questions about how the image of the gorgon may give us an insight into the way that gender-based fear and violence were conceptualised and expressed in the ancient world. According to mythological tradition, the gorgon Medusa, snake-haired and horrifying to look upon, had the power to turn men to stone with her gaze. Slain by Perseus with the help of the gods, the gorgon’s head nevertheless retained its petrifying power and was used widely as an apotropaic symbol in funerary and religious architecture. This paper will also critically reevaluate shifting artistic traditions throughout the Classical period which grew to favour depictions of a ‘beautiful’ Medusa over her former incarnation as a glaring, grinning, tusked monster, considering how this attempt to sanitise the gorgon and bring her more in line with ‘humanism’ may reflect patriarchal fear of a more-than-human female power that transgressed contemporary social order.

**1413. MOTHERHOOD, POLITICS AND VIOLENCE IN THE EARLY ROMAN EMPIRE**

**Contribution format:** Oral  
**Contribution authors:** Sarah Azevedo (Federal University of Bahia)

This presentation aims to discuss issues that intersect motherhood, politics and violence in the early Roman Empire. It focuses on the Augustan and Neronian contexts, and addresses how the exercise of motherhood was exalted in the imperial propaganda undertaken by Augustus and Livia, and how it was despised by Nero, a contempt symbolized by matricide. Thus, analyzing documents about Livia and Agrippina together, this presentation explores the role of motherhood in the politics of the early Roman Empire. One hypothesis is that these documents reveal aspects of the relationship between motherhood and the construction of the imperial image, acting in the construction of the portrait of Augustus as an ideal emperor, and of Nero as an anti-emperor. In this way, we analyze how motherhood is presented in the imagery and rhetorical markers of the beginning and end of the first dynasty of the Roman Empire. In addition to an analysis of the construction of the image of emperors, this presentation mainly points to the political deeds of Livia and Agrippina.

**90 HUNTER-FISHER-GATHERERS IN A WORLD BECOMING AGRICULTURAL: LEGACY, PERSISTENCE, AND/OR RESISTANCE OF MESOLITHIC COMMUNITIES DURING THE EUROPEAN NEOLITHIC?**

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** Hunter-fisher-gatherers , Mesolithic, Neolithic, Neolithisation, Material Culture, Bioarchaeology  
**Session organisers:** Sonja Kacar (Austrian Archaeological Institute/ Austrian Academy of Sciences) – Maïté Rivollat (University of Ghent | Cnrs)

**SESSION ABSTRACT**

This session aims to explore the complex responses of Mesolithic hunter-fisher-gatherer communities during the long and intricate process of Neolithisation in Europe, focusing on archaeological and archaeogenetic evidence that sheds light on how these groups influenced, adapted to, or resisted the shift to agriculture. At the onset of the Neolithic, in regions with significant hunter-gatherer populations, the Neolithisation process is understood as the result of interactions between migrant farmers and indigenous hunter-fisher-gatherers. Their legacy is evident in the persistence of Mesolithic traditions in material culture and subsistence practices, as well as in the significant genetic component inherited from the hunter-gatherers detected in ancient DNA. Additionally, the current genetic dataset indicates an increase of this component in various parts of Europe over a millennium



after the establishment of farming. The apparent lack of evidence of Mesolithic cultural preservation in most of the regions suggests either a fast and direct integration of hunter-gatherers into the Neolithic paradigm, or that Mesolithic communities have been pushed back into less hospitable lands. We welcome contributions examining the legacy, persistence, and resistance of Mesolithic hunter-fisher-gatherer communities within the European Neolithic, particularly from material culture and bioarchaeological perspectives. Key questions include: What are biological and cultural evidence of hunter-gatherer and farmer interactions, along the different stages of the Neolithic? Can we identify the nature of these interactions (cooperation, interbreeding, cultural hybridization, or conflict)? Which elements of Neolithic material culture might reflect preserved Mesolithic traditions? How did hunter-gatherers respond to Neolithic innovations – by adopting, modifying, copying, or rejecting them? Are there archaeological examples that nuance evolutionary narratives by demonstrating societies that abandoned established assets and potentially reverted to hunter-gatherer practices, either intentionally or in response to environmental pressures or conflicts? Lastly, how can we archaeologically identify presumed “Mesolithic survival” in regions where direct evidence is lacking?

CONTRIBUTION ABSTRACTS

2272. FISHING IN THE MEDITERRANEAN DURING THE MESOLITHIC-NEOLITHIC TRANSITION: THE CASE OF LA FONT-AUX-PIGEONS ROCK-SHELTER, MARTIGUES, S. FRANCE

**Contribution format:** Oral  
**Contribution authors:** Aymeric Vignier – Tatiana Theodoropoulou (Université Côte d’Azur, CEPAM UMR 7264)

This presentation will explore fish exploitation in the Mediterranean Sea before and after the Mesolithic-Neolithic transition. First, we will review existing studies on fishing for each period. After this essential recontextualization, we will focus on the site of La Font-des-Pigeons (Marseille, S. France), actually situated at the Berre lagoon (étang de Berre) and at close distance from the shore. This site produced a significant number of fish bones. For the study, we employed several archaeological methods (identification, osteometry, seasonality, ethology) to define the fishing strategies. The results indicate a significant distinction between the Mesolithic and Neolithic occupations. The exploitation of the aquatic environments and fishing techniques differ between the two periods. In the Mesolithic, inhabitants of the rock-shelter mainly fished in freshwater environments using a specialized technique: poison-fishing. In contrast, during the Neolithic, fishing mostly took place in the deep rocky inlets of the shore, called calanques, using nets and other implements. Not only do the fishing practices differ between these periods, but the methods of preparation of fish catches also vary. In fact, during the Neolithic, the remains appear to have been treated differently, with the cranial parts being broken. Conversely, in the Mesolithic, the heads are missing, suggesting a different type of culinary preparation. These preliminary results will be included in an important group of sites chosen for an ongoing PhD study.

2136. CAN WE DETECT HUNTER-GATHERER LEGACIES IN REGIONS LACKING MESOLITHIC SITES? INSIGHTS FROM STARČEVO LITHIC PRODUCTION IN SOUTHERN PANNONIAN BASIN

**Contribution format:** Oral  
**Contribution authors:** Sonja Kacar (Austrian Archaeological Institute/ Austrian Academy of Sciences)

At the southernmost part of the Pannonian region, in the interfluvium of the Sava-Danube-Drava, numerous Neolithic sites have been identified. However, Mesolithic sites remain conspicuously absent, despite the area’s favourable ecological conditions for hunter-gatherer-fisher populations. Nevertheless, several researchers have pointed to indirect evidence suggesting a Mesolithic presence, particularly in subsistence practices, ritual elements, radiocarbon dates, and lithic assemblages. The latter is especially relevant in the case of small bladelets and trapezoidal microliths observed at several Starčevo sites, although these findings have never been explored in detail. This presentation focuses on two case studies, Tomašanci-Palača and Debela Šuma, dated to c. 6000–5300 cal BC, which may also exhibit technological traits reminiscent of Mesolithic traditions. These include bladelet production similar to the Castelnovian traditions, such as bladelets produced by pressure flaking or indirect percussion, and trapezoidal arrowheads manufactured using the microburin technique. Furthermore, these lithic industries appear to rely on locally available raw materials, with little to no integration into broader exchange networks involving non-local resources or, at most, a peripheral position within these distribution networks. Another notable feature is the use of heat treatment to enhance knapability . a technique documented in pre-Neolithic contexts of Central Europe. However, whether this is indicative of a continued Mesolithic tradition remains an open question. With this presentation, we aim to contribute to the ongoing search for the elusive Pannonian Mesolithic, which has yet to be definitively identified.

1885. RELATIONS BETWEEN HUNTER-GATHERERS AND FARMERS DURING THE NEOLITHIC IN THE VISTULA AND ODER RIVER BASINS. IS THERE AN APPROPRIATE TERMINOLOGY?

**Contribution format:** Oral  
**Contribution authors:** Marek Nowak (Institute of Archaeology, Jagiellonian University in Kraków)

According to a growing body of evidence, including radiocarbon dating and aDNA determinations, the coexistence of Mesolithic and Neolithic communities in the Vistula and Oder river basins until the turn of the 5th and 4th millennia BC is increasingly plausible. It is likely that hunter-gatherer communities persisted in these areas for up to 2,000 years longer, until the Bronze Age, possessing some Neolithic attributes, most notably pottery. Should the term “Mesolithic” continue to be used, or, following the tradition prevalent in Eastern European archaeology, should we nevertheless use the term “Neolithic”? Or, finally, would it be more appropriate to use terms like “para-Neolithic”, “sub-Neolithic”, etc.? Since questions of this kind concern terms invented by modern prehistorians, they may seem purely academic. However, from a wider anthropological perspective, they touch on the fundamental problem of the nature of interactions between farming and hunting-gathering communities and their long-term effects. To explore these questions, we will analyse archaeological and archaeogenetic data indicating interactions between farmers and hunter-gatherers in the Vistula and Oder river basins from the mid-6th to the end of the 3rd millennium BC. For the first 1,500 years, evidence of contact is modest and one-sided (Neolithic pottery and stone tools in Mesolithic contexts). In contrast, the following 2,000 years show an increasing number of indications of such interactions, including “hunter-gatherer” pottery at Middle and Late Neolithic sites. Additionally, Mesolithic components in Neolithic aDNA (e.g., in Funnel Beaker culture communities) become more pronounced than before. Therefore, one can hypothesise about the long-standing cultural self-awareness of local hunter-gatherers, including their mental resilience in relation to the “proper” Neolithic.

2436. TEACHING THE CRAFT? – EARLY NEOLITHIC IMPACT ON LATE HUNTER-GATHERERS OF THE NORTH EUROPEAN LOWLANDS

**Contribution format:** Oral  
**Contribution authors:** Andreas Kotula (Brandenburgisches Landesamt für Denkmalpflege und Archäologisches Landesmuseum)

In the northern lowlands, a contact and border zone existed for an extended period of time between early farmers and late hunter-gatherers in the late 6th and throughout the 5th millennium BC. While contacts in the second half of the 5th millennium BC are confirmed by Neolithic finds from Mesolithic settlement sites, evidence of earlier interactions are rare. Accordingly, e.g. northern German Mesolithic burials from the early 5th millennium BC show no sign of admixture with farmers. More to the east the Mesolithic sea-shore site Dąbki, Poland, is a unique example of early and long lasting contact between late hunter-gatherers and early farmers. The site was settled c. 5200-3600 BC and contacts to farming communities to the south are documented by non-local pottery starting as early as LBK and continuing throughout the 5th millennium BC, even indicating long distance contact to Hungary in the late 5th millennium BC. Local Mesolithic pottery is also present with pointed bottom vessels and lamps. Starting from the analysis of the Mesolithic pottery from Dąbki, the talk discusses if the innovation of Mesolithic pottery was at least partly influenced by Neolithic contacts. The supra-regional view highlights Mesolithic pottery in different areas of th. lowlands, indicating local impact of neighbouring Neolithic communities in the early 5th millennium BC.

1632. WE SHALL PERSEVERE – TRACES OF THE PERSISTENCE OF HUNTER-FISHER-GATHERER COMMUNITIES IN THE AUSTRIAN AND SWISS ALPS

**Contribution format:** Oral  
**Contribution authors:** Caroline Posch (Natural History Museum Vienna) – Marcel Cornelissen (Urner Institut Kulturen der Alpen) – Joachim Pechtl (University of Innsbruck)

From the 6th millennium BCE onwards, the Neolithic and its material package are introduced along the Danube and the Mediterranean. However, if we look at distribution maps of early Neolithic sites of Central Europe, the Austrian and Swiss Alps remain a white spot in between the dynamic developments seen in the regions North and South of the Alpine Arc. This lack of evidence is surprising, given the substantial number of Late Mesolithic sites a. o. in the Austrian and Swiss Alps. It seems unlikely that the regional hunter-fisher-gatherer groups (HFG) should suddenly disappear into thin air in the 6th millennium BC. Therefore, the question arises, where did they go? Or rather, did they go anywhere at all? In the Swiss and Austrian Alps numerous sites have been recorded, which yielded 14C-data attributable to the late 6th and 5th millennium BCE. However, they often lack some or all attributes of the classic Neolithic package. Therefore, the question arises, whether these sites are to be seen 1) as indications of a Neolithic use of the Alpine highlands (e.g. early pastoralism or hunting activities); 2) as a persistence of Mesolithic HFG groups within the agriculturally less suitable regions of the Alps; or 3) or if this lack of evidence is largely due to biased preservation? With our paper, we discuss available data from archaeological



surveys and excavations, using the newly excavated site Lache within the Lechtal mountains (Tyrol) as well as other recently discovered and analysed sites as proxies. Furthermore, existing data from palynological analysis of sediment cores will be considered to assess the potential extent of human impact. In doing so, we explore the potential persistence and/or coexistence of Mesolithic HFG within the alpine regions of a more and more Neolithic world.

1894. MESOLITHIC AND NEOLITHIC COMMUNITIES IN BELGIUM: EXPLORING A LONG COEXISTENCE AND ITS POSSIBLE INTERACTIONS

**Contribution format:** Oral  
**Contribution authors:** Solène Denis (CNRS umr 8068) – Eva Halbrucker (Prehistory Research group, Department of Archaeology, Ghent University) – Dimitri Teetaert (Prehistory research group, Department of Archaeology, Ghent University)

Belgium provides an ideal case study for examining the interactions between Mesolithic and Neolithic communities due to its unique archaeological record. For the sandy lowlands of North-Western Europe, Neolithisation was a gradual transition, where a primarily foraging lifestyle persisted much longer (until c. 4300 BC) by “hunter-gatherers in transition” (Swifterbant Culture) while neighbouring loess areas were already colonised by farmer-herders of the Linearbandkeramik Culture (starting c. 5300 BC), later followed by the Blicquy/Villeneuve-Saint-Germain groups. A significant gap in Neolithic occupation occurred between approximately 4700 and 4300 BC, after which the Michelsberg culture expanded more extensively across the region. During this transitional phase, Neolithic innovations—such as pottery or domesticated animals—were gradually adopted by the Swifterbant groups, though an uneven and varying rhythm. The tempo of these transformations, as well as the nature of interactions between foragers and farmers, remains a key question with hypotheses ranging from complete acculturation to demic diffusion or a combination of both. In this paper, we revisit the long-standing research tradition on this period in Belgium, focusing on the pace and mechanisms of cultural transmission, with combining results on pottery and lithic production and use as markers of contact, exchange, and adaptation.

1584. EVIDENCE OF HIGH GENETIC ADMIXTURE BETWEEN HUNTER-GATHERERS AND FARMERS IN THE MEUSE VALLEY, LATE NEOLITHIC BELGIUM

**Contribution format:** Oral  
**Contribution authors:** Maïté Rivollat (PACEA, University of Bordeaux | Department of Archaeology, Ghent University | Department of Archaeology, Durham University) – Prudence Robert – Michel Toussaint (Department of Archaeology, Ghent University) – Caroline Polet – Patrick Semal (Royal Belgian Institute of Natural Sciences) – Pierre Cattelain (Cedarc/Musée du Malgré-Tout, Treignes | CReA/Patrimoine, Université Libre de Bruxelles | Service de Préhistoire, University of Liège) – Kelly Blevins – Eva Fernández Domínguez (Department of Archaeology, Durham University) – Philippe Crombé – Isabelle De Groote (Department of Archaeology, Ghent University)

Southern Belgium, and more specifically the valley of the middle Meuse, is renowned for its rich archaeological record associated with prehistoric periods. Numerous human remains, dating from the Middle Palaeolithic to the Bronze Age, have been discovered in over 400 caves, providing unique fossil assemblages despite a significant hiatus between the Middle Mesolithic and the Middle Neolithic. Here, we present the first results of a paleogenetic analysis conducted on remains from collective cave deposits from Mesolithic and Neolithic. Most of these remains originate from early excavations, some dating back to the early 19th century and rarely accompanied by precise documentation. Therefore, a systematic radiocarbon dating campaign was undertaken to better understand the internal chronology of the burials. The results demonstrate that several cave burials previously identified as exclusively Mesolithic are mixtures of depositions spanning multiple periods. Focusing on the Mesolithic and Neolithic periods, we provide new insights into demographic movements, previously unknown from a biological perspective in the region. While the Mesolithic groups align with known patterns in Western Europe at the time, all Late and Final Neolithic individuals (mid-4th to mid-3rd millennium cal BC) exhibit a strikingly different profile, characterized by an unexpectedly high hunter-gatherer inherited component. This is similar to findings from a few sites in nearby regions, such as modern-day Germany or France. In Belgium, however, the archaeological evidence complements the genetic findings. Indeed, lithic and pottery technology albeit undergoing clear changes in the course of the Late/Final Mesolithic and the Neolithic, also exhibit long-term continuity, despite early import of domesticated plants and animals. The combination of these archaeological and biological patterns highlights unique local dynamics of acculturation.

549. NEOLITHIC ECONOMIC NETWORKS AND HUNTER-FISHER-FORAGER RESILIENCE: MAPPING CONNECTIVITY BETWEEN PITTED WARE CULTURE COMMUNITIES IN THE BALTIC SEA REGION

**Contribution format:** Oral  
**Contribution authors:** Mikael Fauvelle (Lund University) – Torbjörn Brorsson (Kontoret för Keramiska Studier) – Magnus Artursson – Niclas Björck (Swedish National Historical Museums) – Christian Horn (University of Gothenburg)

The Middle Neolithic (circa 3500 to 2300 BCE) Pitted Ware Culture (PWC) occupied the islands and coasts of southern Scandinavia and the Baltic Sea region where they engaged in a subsistence economy focused on fishing and seal hunting. Throughout their history the PWC competed with terrestrially focused agricultural groups including the Funnel Beaker Culture and the Battle Axe Culture. Despite small settlement sizes, PWC communities were able to thrive in their maritime environment and successfully resisted encroachment by their agricultural neighbors for over twelve hundred years. In this paper we present preliminary data on connectivity between PWC sites in order to better understand the social organization of these neolithic fisher-foragers. We use the results from Inductively Coupled Plasma Mass Atomic Emission (ICP-MA/ES) and thin section analysis of figurines and potsherds to build a snapshot of a ceramic exchange network centered on the site of Tråsättra (circa 2630 to 2470 BCE), located northeast of modern-day Stockholm. We also use viewshed analysis to map connections between sites in order to better understand PWC settlement organization. We argue that our results show that there was regular interaction between PWC communities and suggest that regional economic and political networks could have helped communities organize against any external threats that they might have faced over the course of the Middle Neolithic.

92 BEYOND BURIALS AND BRICKS - INTERDISCIPLINARY APPROACHES TO UNRAVEL SOCIAL COMPLEXITY IN PRE-INDUSTRIAL CITIES AND TOWNS

**Session theme:** 1. On artefacts and beyond  
**Session format:** Session with keynote presentation  
**Session keywords:** Social Complexity, Urban Archaeology, Paleodemography, Interdisciplinarity, Inequality, Heterogeneity  
**Session organisers:** Kirstine Haase (Museum Odense) – Maria Legut-Pintal (University of Wrocław) – Dorthe Dangvard Pedersen (University of Southern Denmark) – Saige Kelmelis (University of South Dakota) – Pawel Duma (University of Wrocław)

SESSION ABSTRACT

Towns and cities have traditionally been viewed as places with high social complexity and diversity. The lives of people from all layers of society unfold within the same physical space, creating the heterogeneity that is a defining element of urban life. However, the lives of those at the bottom of society and those from the upper echelons are, and were, very different. These social inequalities and stratifications were expressed and reproduced through differences in occupation, consumption patterns, health, diet, spatial organisation and distribution of social groups. Therefore, the session’s goal is to present an interdisciplinary approach that can contribute to a better understanding of social complexity in historic towns. We invite researchers from a wide range of disciplines to discuss and unravel social complexity in towns from the pre-industrial period. We want to explore what new insights and perspectives can be gained by combining archaeology and disciplines such as architectural studies, history, bioarchaeology, osteology, paleodemography and geography. We will discuss social complexity in cities by answering the following questions. Which social groups lived in towns, and how can we trace them. What were the living conditions, quality of life, health, mortality risk and way of life of different social groups. How significant were the differences between high and low social groups in towns, and how were they manifested. We invite proposals that present interdisciplinary work combining archaeological studies and other disciplines, such as: Osteobiographies. Paleodemographical studies. Mortuary practices. Environmental studies. Paleoepidemiological studies. Isotopic studies. Spatial and topographical studies. Architecture studies. Metabolomics.

CONTRIBUTION ABSTRACTS

2511. KEYNOTE: BIOARCHAEOLOGY, MEDIEVAL TOWNSCAPES, CHANGE AND CRISIS

**Contribution format:** Oral  
**Contribution authors:** John Robb (University of Cambridge)

Medieval bioarchaeology stands at an ambitious moment. Spatially and socially, bioarchaeology is evolving from



a focus upon single sites to investigating the complexity of townscapes, investigated by studying heterogeneous sites or by comparing multiple sites. Similarly with temporal variation: it is evolving from simply characterising medieval lifeways at one moment to trying to identify change over time, particularly as regards various forms of medieval crisis and transition. These are both important directions in creating a bioarchaeology that goes beyond studying skeletons to provide data and narratives of relevance to historical interpretation and long-term trends. However, achieving them poses challenges which appear to be methodological choices, but which really reflect our underlying conceptual assumptions - for instance, whether we conceptualise society as homogeneous or heterogeneous, change as gradual or sudden, and explanation as simplifying scientific models or as layered historical interpretations. This paper explores how we might take such considerations into account in designing research. As an extended example, it uses the study of several hundred individuals from multiple medieval sites in Cambridge, England.

1000. URBANIZATION AND HEALTH: HETEROGENEOUS MORTALITY AND SURVIVAL IN MEDIEVAL LUND

**Contribution format:** Oral  
**Contribution authors:** Blair Nolan (Department of Archaeology and Ancient History, Lund University)

The bioarchaeology of urbanization is an interdisciplinary field in which researchers collect osteological data that is interpreted within specific archaeological and historical contexts, theorizing on the various impacts of urbanization on past populations. In this presentation I report on changing health patterns throughout the Medieval period in Lund, based on data gathered from 1600 adult individuals from the Trinitatis church cemetery (c. 990-1536 CE). I conceptualize health using a survival and mortality approach, identifying disparities in survivorship and risk of mortality at the population level and between subgroups. Lund was a vibrant hub within the Danish Kingdom, in which people of varying social identities interacted. I unpack how health outcomes changed throughout the Medieval for the population of Lund and how these patterns differed based on factors such as sex or evidence of previous biological stresses. Changes in survivorship and mortality were measured using Kaplan-Meier survival analysis and Cox proportional hazards modeling. This data is contextualized within a town that over time experienced periods of growth and stagnation against a background of economic shifts, power struggles, and crises of climate and disease (e.g. Black Death). My results indicate that health outcomes fluctuated throughout the Medieval period. Notably, survivorship and mortality risk outcomes improved during the Late Medieval relative to the Early and High Medieval. Males and females showed no differences in health outcomes, whereas some stress markers did have had an impact. Health in urban settlements was mediated by several factors which included one’s position within society and their lived experience. Studies such as this further our understanding of the heterogeneous effects of urbanization on populations in Medieval cities and towns.

633. BIOARCHAEOLOGICAL APPROACHES TO STUDYING LEPROSY AND TUBERCULOSIS STATUSES AS EVIDENCE OF DIFFERENTIAL HEALTH AND DEATH TREATMENTS IN MEDIEVAL DENMARK

**Contribution format:** Oral  
**Contribution authors:** Saige Kelmelis (University of South Dakota) – Vicki Kristensen – Dorthe Pedersen (Unit of Anthropology (ADBOU), University of Southern Denmark)

Medieval Danish populations endured several infectious diseases that remain imprinted in our present-day imaginings of what medieval life was like. Especially leprosy and tuberculosis were wide-spread. However, were individuals from urban and rural populations equally susceptible to these diseases? Moreover, did their disease status potentially dictate their burial position within churchyards? This study integrates approaches from archaeology and paleoepidemiology to analyze differences in health and death treatments in 812 adults interred at four rural and two urban cemetery sites. Prevalence of both diseases were estimated using probabilistic approaches based on sensitivity and specificity measures of disease-related lesions, which were used as variables in nonparametric hazards models to assess differences in survivorship and mortality between burials with varying degrees and types of infection. The spatial distribution of burials of individuals with pre-existing health conditions showed no clear evidence of differences in death treatments. Variable differences in survivorship across different cemeteries were found (p<0.001), but none among rural and urban sites. There were no statistically significant differences between survivorship and hazards for those that scored negatively and positively for leprotic lesions, whereas individuals scored positive for tuberculosis had significantly higher survivorship compared to their non-lesioned age peers (p<0.001). Lastly, we found that cemetery location is a strong predictor for survivorship (p<0.001). Results remained unchanged even when controlling for tuberculosis (p<0.001). The different patterns of survivorship and mortality hazards for individuals affected by the diseases reinforces historical and paleoepidemiological evidence that leprosarias have filtered out severe cases of illness from the living population, thereby affecting the distribution of cases in non-leprosaria cemeteries. Tuberculosis was widespread with more robust, exposed individuals living into later stages of infection compared to their non-lesioned age peers. For both diseases, those with severe bone involvement seemed no differently treated in death than those without signs of disease.

266. FOR THE WEALTHY AND THE POOR: DIET AND HEALTH AS SOCIO-TOPOGRAPHICAL FACTORS IN MEDIAEVAL TRONDHEIM

**Contribution format:** Oral  
**Contribution authors:** Axel Christophersen (NTNU University Museum, Dep. of Archaeology and Cultural History)

Individual and societal health depend on access to critical nutritional sources. Access determines food, with both composition and amount having a significant impact on an individual’s immune system and hence health state. The environment and climate, as well as social and economic status, influence people’s access to nutrition. We can form an overall picture of a population’s health status by collecting data on the prevalence of diseases that weaken the immune system, such as infectious diseases like paratyphoid, leprosy, tuberculosis, and other contagious diseases, as well as those that can be linked to malnutrition or undernutrition, such as iron deficiency anaemia, vitamin deficiency, or other physiological stress factors in childhood. If the image depicts a poor health situation for a portion of the population, it can be interpreted as either a) this group has had limited access to available nutritional sources due to limited social/economic opportunities, or b) access has been reduced at times due to naturally limited nutritional supplies such as acute or longer-term climate changes, war, or other external circumstances. The NRC-funded interdisciplinary project “Mediaeval urban health. From Private to Public Responsibility 1000-1600” has, among other things, mapped health and disease prevalence in individuals buried in three different cemeteries located in central and peripheral Trondheim, Norway during the Middle Ages. We were able to record the prevalence and distribution of disease frequency, infectious diseases, and infection occurrences in 79 individuals from three cemeteries using a mix of traditional archae-osteological analysis, isotope analyses, and aDNA analyses. We used this complicated dataset to show disparities in nutritional access and food composition between the three demographic groups. Based on this we can establish a social-topographical distinction of urban area that has existed at least since the second half of the 12th century.

1151. EXPLORING THE SOCIAL FABRIC OF A MEDIEVAL TOWN

**Contribution format:** Oral  
**Contribution authors:** Kirstine Haase – Peder Dam (Museum Odense)

Over the centuries, the physical structures of towns have evolved in close interaction with the social geographies of their inhabitants. It is a well-established concept that towns possess distinct zones for various activities, and that individuals’ residences and movements within a town are partially determined by their societal status. This dynamic profoundly influences the functioning and development of a town. Consequently, reconstructing the social topography of a town is essential for understanding its structure and societal role. For certain towns and historical periods, written records provide valuable insights. However, for the medieval period in Denmark, such sources are exceedingly scarce, necessitating an interdisciplinary approach to gain a deeper understanding. In this paper, I will present a case study from Odense, Denmark, where the integration of maps, architectural studies, written records, and archaeological findings has enabled the construction of a more concrete and nuanced depiction of the interplay between the town’s social and physical structures during the Middle Ages and the early modern period.

776. MAPPING SOCIAL COMPLEXITY: SPATIAL HIERARCHIES IN PRE-INDUSTRIAL TOWNS IN CENTRAL EUROPE

**Contribution format:** Oral  
**Contribution authors:** Maria Legut-Pintal (Wrocław University of Science and Technology) – Paweł Duma (University of Wrocław)

The spatial structure of medieval and early modern cities was shaped by economic, political, social, and environmental factors, giving rise to both elite districts and areas of poverty. This study explores the mechanisms driving these spatial disparities: what determined the location of prestigious and marginalised areas, and how did these factors influence urban development over time? Can these patterns be identified using archaeological methods? Focusing on case studies from Central European towns, including Wrocław and Prague, we adopt an interdisciplinary approach that combines historical sources, architectural and archaeological research, GIS-based spatial analysis, and space syntax methodology. By examining urban functions and real estate values, we identify the key forces shaping social and spatial hierarchies. These data are integrated with artefactual analyses from excavations of selected sites to assess qualitative differences in assemblages across comparable time periods. The results are not always conclusive – at times they align with assumptions drawn from other sources, such as evidence of poverty, while in other cases they challenge these interpretations. Our findings highlight centrality and accessibility as critical factors in urban stratification. Highly accessible areas, located near marketplaces, main thoroughfares, and centres of power, tended to retain their prestigious status, whereas peripheral or isolated



zones often became enclaves of poverty. Additionally, urban planning decisions – such as the placement of noxious industries or the enforced segregation of specific groups (e.g., Jewish quarters), further reinforced social divisions. This research offers new insights into the spatial organisation of medieval and early modern cities and establishes a comparative framework for analysing long-term patterns of urban inequality. It also evaluates the effectiveness of different methodological approaches and underscores the value of interdisciplinary collaboration in interpreting historical urban landscapes.

94 GENRE, GÉNERO, GESCHLECHT...: NAVIGATING SEX AND GENDER TERMINOL-  
OGY IN EUROPEAN ARCHAEOLOGIES

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Session theme:      | 2. Intertwined Epistemologies: Transcending the Data – Theory Divide                                                                                                                                                                                                                                                                                                                                                                                                                |
| Session format:     | Round table                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Session keywords:   | Gender archaeology, Gender, Sex, Archaeological terminology, Methods                                                                                                                                                                                                                                                                                                                                                                                                                |
| Session organisers: | Isabelle Algrain (Université libre de Bruxelles) – Marta Hlad (Vrije Universiteit Brussel) – Bissierka Gaydarska (Historic England)                                                                                                                                                                                                                                                                                                                                                 |
| Session speakers:   | Silvia Tomášková (University of British Columbia) – Sandra Montón Subías (ICREA   UPF) – Marianne Moen (Museum of Cultural History, University of Oslo) – Bettina Arnold (University of Wisconsin-Milwaukee) – Kaja Stemberger Flegar (PJP d.o.o.) – Mariassunta Cuozzo (Università degli Studi del Molise) – Caroline Trémeaud (Service archéologique des Ardennes   UMR Trajectoires) – Bissierka Gaydarska (Historic England) – Isabelle Algrain (Université libre de Bruxelles) |

SESSION ABSTRACT

This roundtable invites scholars to examine how European languages shape the concepts of sex and gender in archaeology. While terminology around sex and gender is well-defined in English, key terms, concepts, and nuances differ significantly across linguistic contexts. For instance, the term gender has been challenging to translate in some cases, or remains untranslated, complicating research in this field. In today’s “publish in English or perish” climate, impactful research in gender studies and gender archaeology risks being overlooked if not published in English. Yet, innovative work developed outside the Anglophone world often goes under-cited and underutilized in global debates. This session aims to create a space where non-English-speaking scholars can contribute insights from their cultural and linguistic contexts, enriching the typically Anglo-centric conversation. Participants will address key questions:

- What is the aim of gender archaeology in your perspective?
- How are sex and gender conceptualized in your research?
- How relevant is sex as an analytical tool?
- What is lost in translating these concepts between English and your language?
- How does gender archaeology intersect with sociology in your country?

By exploring these questions among experts from diverse linguistic backgrounds (Latin, Germanic, Slavic), the roundtable will provide insight into the varied ways gender archaeology is practiced across Europe. Panelists from French, German, Spanish, Italian, Scandinavian, and Slavic language groups will reflect on the challenges posed by linguistic differences and their impact on research. Following brief introductions from panelists, the discussion will open to all attendees. We encourage audience participation, inviting everyone to share their experiences and perspectives. This session ultimately aims to foster inclusive, cross-cultural dialogue, recognizing linguistic barriers and amplifying voices often overlooked in the global academic landscape.

96 BRIDGING THE GAP BETWEEN BIOARCHAEOLOGY AND CULTURAL STUDIES IN  
UNDERSTANDING TRANSITIONS IN THE PAST

|                     |                                                                                                                                                                                                                                                                                                                                            |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Session theme:      | 5. Finding the way! Archaeological sciences and opening new research perspectives                                                                                                                                                                                                                                                          |
| Session format:     | Regular session                                                                                                                                                                                                                                                                                                                            |
| Session keywords:   | Bioarchaeology, Cultural studies, Transitions, Social relationships, Migrations, Transfers of knowledge                                                                                                                                                                                                                                    |
| Session organisers: | Elsa Defranould (Ecole des Hautes Etudes Hispaniques et Ibériques) – Solène Denis (CNRS - UMR8068 Temps) – Jasmine Lundy (BioArCh, Department of Archaeology, University of York) – Maïté Rivollat (CNRS - UMR5199 Pacea, Bordeaux University) – Dimitri Teetaert (Prehistory research group, Department of Archaeology, Ghent University) |

SESSION ABSTRACT

Transitions during prehistoric and historical periods cannot be fully understood as mere adaptations to new economic, subsistence, or production systems. Instead, these shifts are intricately embedded within complex social contexts, involving cross-community relationships, migrations, and the transmission of knowledge, ideas, and technologies. These processes vary significantly across different geographical and chronological settings, shaped by the diverse modes of interaction between distinct population groups. While bioarchaeological research provides valuable insights into these transitions—often highlighting large-scale patterns of human migration, genetic intermixing, and broad demographic shifts, especially in the case of ancient DNA studies—these perspectives do not always align with the detailed, context-specific findings offered by cultural studies. Cultural studies, with their focus on material culture, social identities, and the nuanced transmission of knowledge and technologies, often reveal more localized and intricate patterns of change. The challenge lies in reconciling these two approaches, as they often operate on differing temporal and spatial scales. This session aims to foster a critical dialogue between bioarchaeological and cultural perspectives, with the goal to: (i) refine and question the temporal frameworks of these processes; (ii) identify patterns of interaction that may either converge or diverge across disciplines; and (iii) explore the rhythms of contact and exchange, and their effects on human behavior, social organization, and technological evolution. Through cross-disciplinary discussions, we seek to bridge the gap between bioarchaeological narratives and cultural studies. We invite contributions from around the world that explore mobility, migration, and interactions among societies undergoing these transitions. Researchers from bioarchaeology, material culture studies, residue analysis, ancient DNA research, and related fields are encouraged to participate. By bringing together diverse perspectives, we hope to deepen our understanding of these transitions and integrate both large-scale and fine-grained views into the broader historical narrative.

CONTRIBUTION ABSTRACTS

345. WHOSE HERITAGE IS MESOLITHIC (IN SOUTH-WESTERN UKRAINE)?

|                       |                                                 |
|-----------------------|-------------------------------------------------|
| Contribution format:  | Oral                                            |
| Contribution authors: | Dmytro Kiosak (Leibniz-Zentrum für Archäologie) |

Recent paleogenetic studies suggest that Eastern European hunter-gatherers interacted with incoming early farmers relatively late—only just before the advent of the Eneolithic epoch in the fifth millennium BCE. In contrast, lithic analyses have often been more optimistic about Mesolithic influences on Neolithic material culture, even in contexts dated to the sixth millennium BCE. How can this apparent discrepancy be understood? This study critically examines the evidence for Meso-Neolithic interactions through the lens of radiocarbon dating and contextual analysis. The findings allow us to refine the list of potential interacting agents, eliminating certain candidates. Furthermore, a more nuanced social interpretation of innovations and cultural borrowings in Neolithic lithic industries may provide key insights into resolving this debate. It appears that ‘Mesolithic’ technological components were adopted by early farmers only in specific contexts—primarily in newly colonized landscapes or frontier situations. Over time, even within the same cultural framework, standard early farming tools became predominant, often replacing the earlier frontier toolsets and sometimes marking a clear break in technological tradition.

1543. RECONSTRUCTING THE LIFETIME MOVEMENTS OF FARMING PIONEERS AND THEIR SUCCESSORS DURING THE NEOLITHIC IN THE SOUTHERN CARPATHIAN BASIN

|                       |                                                                                                                     |
|-----------------------|---------------------------------------------------------------------------------------------------------------------|
| Contribution format:  | Oral                                                                                                                |
| Contribution authors: | Tamara Blagojevic – Jelena Jovanović – Maja Kokanović – Nejra Omerović (BioSense Institute, University of Novi Sad) |

Changes in mobility and settlement patterns represent an important aspect of studying the processes of Neolithization and the consolidation of Neolithic practices. Project MOVE aims to study the origins of the sedentary lifestyle by exploring the residential and lifetime mobility and settlement patterns of the first farmers that settled in the Southern Carpathian Basin during the Early Neolithic (~6250-5300 cal BC) and explore how these patterns differed between the Early and Late Neolithic (~5350/5300-4500 cal BC). We will address the long-standing questions in regional prehistoric archaeology: 1. What were the characteristics of the Neolithic settlements, how long were they occupied, and what was their internal organization? 2. What was the nature and magnitude of the mobility patterns? 3. Were Late Neolithic communities less mobile than the Early Neolithic ones? To reconstruct these aspects of the Neolithic, we combine a diverse set of state-of-the-art methods and a holistic approach to the archaeological record from Serbia and Croatia. Contextual analysis in combination with Bayesian modeling of C14 dates will reveal the settlement size, duration, and organization. We will directly estimate the degree of individuals’ lifetime mobility by analyzing the strontium stable isotopes from the human remains. The stable isotope analysis of carbon, nitrogen, and sulfur will reveal the dietary and environmental exploitation patterns of Neolithic communities. The study of faunal remains will infer economic strategies and indicators of mobility



associated with animal husbandry. The synthetic interpretation will contribute to our understanding of the settlement life of the Neolithic communities and the origins of the phenomena that led to the prevalence of sedentary lifestyles today. This research was supported by the Science Fund of the Republic of Serbia, GRANT No. 7498, Moving across the plain: reconstructing the lifetime movements of farming pioneers and their successors during the Neolithic in the Southern Carpathian Basin-MOVE.

1016. HOUSEHOLDS IN TRANSITION: ETHNOGRAPHIC PERSPECTIVES ON CYCLICAL CHANGE IN THE ARCHAEOLOGICAL RECORD

**Contribution format:** Oral  
**Contribution authors:** Sabina Cvecek (Field Museum of Natural History | Austrian Arcaheological Institute)

Discussions of transition in archaeological contexts often focus on large-scale societal shifts, such as subsistence changes, technological innovations, or demographic movements. These transitions are typically traced through changes in material culture, technology, and more recently, ancient DNA. However, at the scale of the household, transitions are not singular events, but continuous, cyclical processes embedded in daily life. Drawing on Jack Goody’s developmental cycle in domestic groups, this paper explores how households continually undergo internal transitions—through generational succession, marriage, inheritance practices, and shifting divisions of labor—that may not always manifest in macro-level genetic or cultural signatures. By integrating bioarchaeological and contextual evidence, I argue that recognizing these micro-scale transitions allows for a more nuanced understanding of social continuity and change in cases where large-scale genetic intermixing or migration appears present or absent. This broadens the analytical scope of bioarchaeology and encourages an engagement with the lived, dynamic nature of past communities. At the same time, it shifts our perspective from viewing communities in transition as moving from one fixed state to another (x to y) to understanding them as being in transition, continuously negotiating the spaces between x and y.

171. CAST INTO THE LIMELIGHT – BIOARCHAEOLOGY AND THE GAPS IN ARCHAEOLOGICAL KNOWLEDGE

**Contribution format:** Oral  
**Contribution authors:** Daniela Hofmann (University of Bergen) – Márton Szilágyi (Eötvös Loránd University, Budapest) – Julie Dunne (University of Bristol) – Ludwig Husty (Kreisarchäologie Straubing-Bogen)

Before the bioarchaeological revolution (and, in fairness, since then) not many people had heard of the Cham culture, a rather obscure regional grouping of the Late Neolithic in southern central Europe. As part of the “ugly pottery horizon”, there were few scholars brave enough to want to specialise in Cham culture material, which in addition proved difficult to define spatially or to pin down chronologically. Since then, the transition to the Corded Ware culture has been established as one of the most dramatic cultural, social and not least genetic changes in European prehistory, often associated with the catchphrase of a “steppe migration”. Suddenly, the Cham culture, as immediately preceding this watershed moment, should have monopolised scholarly attention. And indeed there has been a slight upturn in archaeological interest – but the main boom has yet to happen. Most likely, the reason is that the Cham culture is relatively poor in human remains, and so we cannot really answer the question of who these people were – or can we? In this paper, we briefly trace how lipid analysis of pottery and more traditional archaeological studies have begun to sketch an interesting picture of a society in transition, with varied and dynamic contact patterns that have the potential to cast a new light on the “steppisation” of southern central Europe. What we can say about the possible interactions with neighbouring groups, and how could a new research strategy integrating archaeological and bioarchaeological questions change the way we look at this forgotten piece of the puzzle?

1439. INTEGRATING BIOARCHAEOLOGY, ENVIRONMENT, MATERIAL CULTURE, AND TIME TO RECONSTRUCT SOCIAL ORGANISATION IN THE CZECH CORDED WARE CULTURE

**Contribution format:** Oral  
**Contribution authors:** Mikkel Nørtoft (Section for Prehistoric Archaeology, Saxo Institute, University of Copenhagen) – Adam Rohrlach (Department of Archaeogenetics, Max Planck Institute for Evolutionary Anthropology)

The display of wealth in archaeological contexts is an intriguing aspect of our understanding of past societies. How changes in climate, migration events, varying population size, and changes in burial practices may have shaped performative wealth display in burials and social organization over time in the Corded Ware Culture (CWC) has not yet been quantified and studied in detail. By integrating archaeogenetic data with multiple wealth measures at a regional scale using QuantWealth (Nørtoft 2022), we offer a nuanced perspective on evolving social mechanisms in Bohemia during the 3rd millennium BCE. During several years of “darkened sun” around 2900 BCE, migrants from the Pontic steppe mixed with agropastoralists of the Globular Amphora culture and began settling

in Bohemia. In this study, we integrate multiple lines of evidence to unravel several phases of social structure during the CWC period in Bohemia. As they built and maintained migrant networks with neighbouring CWC groups, visible through shared funerary practices and resource networks, they initially appear as a gerontocratic multi-lineage society with a growing population and high social mobility. However, concurrent with the appearance of a new paternal lineage in Bohemia around 2700-2600 BCE, displays of wealth in the CWC became more competitive, perhaps centred around feasting networks, and linked to power struggles between lineages. In the late phase (c. 2500-2300 BCE), a few select child burials became more elaborate with prestige objects, likely indicating intergenerational wealth transmission and early steps toward emerging persistent inequality in the CWC. By synthesizing genetic, archaeological, and theoretical approaches, with special attention to chronology, we thus propose a more detailed narrative about the CWC which may be further tested with future data.

1984. A NEW PERSPECTIVE ON BRONZE AGE MORTUARY DIVERSITY AND CONNECTIVITY FROM THE HAN-SUR-LESSE CAVE, BELGIUM

**Contribution format:** Oral  
**Contribution authors:** Hannah Leonard (Archaeology, Environmental Changes & Geo-Chemistry Research Group; Vrije Universiteit Brussel) – Giacomo Capuzzo (Archaeology, Environmental Changes & Geo-Chemistry Research Group; Vrije Universiteit Brussel | University Of Trento: Department Of Humanities) – Christophe Delaere (CReA-Patrimoine, Université libre de Bruxelles) – Caroline Polet (Royal Belgian Institute of Natural Sciences, Research Group Quaternary Environments And Humans) – Guy De Mulder (Ghent University Archaeology Department, Research Group Protohistory) – Koen Deforce – Possum Pincé (Royal Belgian Institute of Natural Sciences, Research Group Quaternary Environments And Humans) – Mathieu Boudin (Royal Institute of Cultural Heritage, Radiocarbon Dating Laboratory) – Sophie Verheyden (Royal Belgian Institute of Natural Sciences, Research Group Geological Survey Of Belgium) – Christophe Snoeck (Archaeology, Environmental Changes & Geo-Chemistry Research Group; Vrije Universiteit Brussel)

Bronze Age Belgium sat at the crossroads of Europe and as a result, was separated into two distinct cultures. This split was reflected not only in material culture, but also in the mortuary practices. The development of cremation as a funerary rite in barrow contexts, followed by the Late Bronze Age Urnfield Culture and so-called flat graves, were characteristic of the Scheldt basin (northern Belgium). However, in the Meuse basin (southern Belgium), collective cave burials of inhumations persisted in the Calestienne caves, lasting from the Neolithic until the Roman period. Han-sur-Lesse cave, located in the Famenne-Ardenne UNESCO Global Geopark, is argued to be the most significant of these, revealing over 3,000 bronze artifacts from across its occupation periods, considerable rare gold finds, as well as pieces of Mediterranean origin, all found in river contexts. Multi-disciplinary approaches in Belgium have already been successful at understanding transitory events. Absolute dating of human remains has determined that the Urnfield Culture began earlier than initially thought, and through strontium isotope analysis, early Urnfield adopters in the Scheldt basin are known to be local. Furthermore, 87Sr/86Sr analysis confirms that Bronze Age individuals from the Kempen region, in northeastern Belgium, can be connected geographically to the Meuse basin. Whilst extensive material culture connects the Han-sur-Lesse site to the wider European Bronze Age, who the individuals buried in the cave were cannot be fully grasped by this alone. Through isotope analysis (C, O, Sr) of inhumated remains, the geographic origins of those individuals can be discussed. This interdisciplinary approach can explore potential mobility during a time of gradual population expansion in the Scheldt basin, as well as exchange and connection networks not visible in the archaeological record, contextualising a unique site within the large-scale transitions of the Bronze Age, and mortuary diversity.

1662. BRONZE AGE TRANSITIONS IN ALSACE: MOBILITY, IDENTITY, AND CULTURAL CHANGES

**Contribution format:** Oral  
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The end of the Bronze Age in Western Europe marks a key transition period, reflected in material culture, demography, and funerary practices. In the Alsace region (northeastern France), cultural influences evolve between the end of the Middle Bronze Age and the Late Bronze Age (1400-800 BCE), shifting from the Oriental Tumulus



culture (part of the North Alpine Group) to the Rhin-Suisse-France Orientale group. This transformation is visible in material culture, where ceramic types and decoration change gradually, as well as in funerary practices, with inhumations under tumuli becoming less common and cremation emerging as the dominant funerary practice. Grave goods also evolve: metallic objects, prevalent in the tumulus traditions during the Middle Bronze Age, are progressively replaced by numerous pottery vessels. These changes suggest complex social interactions and potential human mobility. This study focuses on the “Reguisheimer Feld” site in Ensisheim (Alsace), a major cemetery densely occupied at the end of the Bronze Age. Material culture, including pottery and metal objects, suggest close affinities with northern Switzerland and southwestern Germany. To investigate human mobility, strontium isotope analysis was conducted on bone fragments from 140 cremations that date from 1350 to 800 BCE. The isotopic ratios (0.7081 – 0.7120) compared with a regional isotopic baseline (isoscape) indicate that most individuals were local and shared a common environment. However, several isotopic outliers suggest greater mobility and connections to different environments. By combining bioarchaeological data and archaeological social identities, we aim to explore population dynamics, mobility patterns and social interactions at both collective and individual levels. It provides insights into a society experiencing significant cultural change during the Late Bronze Age in Western Europe.

**1146. LIFEWAYS OF LATE BRONZE AGE COMMUNITIES IN CENTRAL GERMANY: INSIGHTS FROM ANCIENT DNA, ISOTOPES, AND ARCHAEOLOGY**

**Contribution format:** Oral  
**Contribution authors:** Eleftheria Orfanou (Max Planck Institute for Evolutionary Anthropology, Department of Archaeogenetics, Leipzig | Max Planck Institute of Geoanthropology, Jena | Chair of Pre- and Protohistoric Archaeology, Friedrich-Schiller University Jena)

The Late Bronze Age (LBA; 1300–800 BCE) of Central Europe has been proposed as a period of major population movements, socioeconomic changes, and cultural connections. However, reconstructing the impacts of these dynamics on different populations has been hindered by the fact that cremation was the dominant mortuary practice, limiting the use of biomolecular approaches. Here, we apply ancient DNA, oxygen and strontium isotope analyses, and osteoarchaeological analyses to rare inhumation burials from the sites of Kuckenburg and Esperstedt in central Germany. These sites present varied mortuary practices such as settlement burials, cemetery burials, skull-only burials, and multi-stage funerary rites, allowing us to investigate the community’s burial choices and societal perceptions of the individual. The analysis of 36 LBA individuals reveals regional genetic continuity over time with subtle differences between early and late LBA individuals. Comparison with 14 LBA individuals from Neckarsulm and published data from southern Germany shows a clear ancestry dichotomy: southern individuals have more Early European Farmer-related ancestry than those from central Germany. Oxygen and strontium isotope analyses suggest most individuals from central Germany, including those who were cremated, were local, with limited exceptions. Our findings suggest that the diverse inhumation practices at Kuckenburg and Esperstedt were culturally and socially motivated, reflecting local traditions and decisions rather than the influx of new groups with substantially different ancestries and/or “non-local” individuals.

**1581. PEOPLE FROM IRON AGE DHOFAR (SULTANATE OF OMAN): THE ARCHAEOLOGICAL AND ANTHROPOLOGICAL STUDY OF KHOR RORI NECROPOLIS**

**Contribution format:** Oral  
**Contribution authors:** Vittoria Bianchi (Department of Cultural Heritage, BonesLab, University of Bologna | International PhD College, Collegio Superiore, University of Bologna) – Matteo Vangeli (Department of Civilizations and Forms of Knowledge, University of Pisa) – Eugenio Bortolini (Department of Cultural Heritage, BonesLab, University of Bologna) – Silvia Lischi (Université Paris 1 Panthéon-Sorbonne, EHAAS | UMR 8167 – Orient & Méditerranée Ues, CNRS) – Stefano Benazzi (Department of Cultural Heritage, BonesLab, University of Bologna)

The area of Khor Rori, about 35 km east of the modern city of Salalah (Dhofar, Sultanate of Oman), is characterised by numerous archaeological remains from different periods that are currently under investigation. Most of these remains date to the Iron Age and are attributed to two distinct cultural traditions with fluctuating relationships: the Dhofar Coastal Culture and the South Arabians from Hadramawt. This paper presents a preliminary study of the KR-N1 necropolis, an extensive burial site dating to the Iron Age that covers approximately 22 hectares. Situated on a rocky hill overlooking the Indian Ocean and the Inqitat promontory, where the principal settlement of the Dhofar Coastal Culture was located, the necropolis comprises around 700 tombs. These tombs are cist graves, constructed of megalithic stone. Some burials are paratactic, placed side by side to form continuous units known as multiple cists, while others are isolated, known as dolmenic cists. A systematic survey has identified clusters where both forms coexist. Stratigraphic excavation of eight tombs have been carried out, and the human remains recovered from them have been analysed. Preliminary observations indicate that the bones

are significantly affected by diagenetic processes, which affect their preservation and visibility. Nevertheless, an anthropological study has been carried out, estimating the Minimum Number of Individuals to be four and providing age-at-death estimates. Given the challenges associated with macroscopic examination, sex determination is performed through amelogenin protein analysis, while mobility and diet are inferred through stable isotope analyses. This multidisciplinary approach, which combines osteoarchaeology, paleoproteomics, and isotope analysis, has been rarely applied in Dhofar. Yet, it is the only effective means to reconstruct past communities’ diachronic and synchronic dynamics. This study marks the first step in a broader project aimed at expanding this methodology across the entire region, bridging the gap between archaeology and bioarchaeology.

**1929. CHALLENGING TRADITIONAL MIGRATION PERIOD NARRATIVES WITH A MULTI-PROXY APPROACH**

**Contribution format:** Oral  
**Contribution authors:** Claudia Gerling – Margaux Depaermentier – Cornelia Alder – Michael Kempf (University of Basel) – Irka Hajdas (ETH Zurich) – Joscha Gretzinger – Zuzana Hofmanová – Johannes Krause (MPI Leipzig) – Peter-Andrew Schwarz (University of Basel)

The 1st millennium CE in Basel (Switzerland) is characterised by diversity in the archaeological record and complex political, cultural, and economic interactions. The present study aims to investigate mobility patterns, subsistence strategies, and communication networks in the region at the periphery of the Late Roman Empire, which became the centre of Early Medieval crossroads between cultural entities. This objective is pursued through an in-depth analysis of ca. 150 burials dating to the 4th to the 8th centuries CE using an integrative approach encompassing AMS radiocarbon dating, archaeological, anthropological, isotopic, and genetic analyses, as well as environmental modelling. Preliminary results call into question the previously held view of large-scale migrations from the 4th/5th centuries onwards. Instead, the results indicate that regional mobility was prevalent – besides the presence of large-scale communication networks. This study underscores the pivotal role that bioarchaeological approaches play in unveiling hitherto unanticipated facets of social dynamics during the late antique and early medieval periods in Basilia/Bazela, thereby facilitating the reconstruction of individual life histories. The study further demonstrates the benefit of integrating multivariate models involving high-resolution climatic and environmental data to disentangle potential drivers of isotope variability at various scales.

**2243. MIGRATION OR CULTURAL TRANSFORMATION? NEW INSIGHTS FOR THE EARLY MIDDLE AGES IN THE LIGHT OF BIOARCHAEOLOGICAL DATA**

**Contribution format:** Oral  
**Contribution authors:** Tivadar Vida (ELTE Eötvös Loránd University, Budapest)

Changes in material and spiritual culture generally indicate the transformation of cultural or ethnic identity, which has previously almost always been attributed to migration. However, archaeologists, historians and biological anthropologists tended to vehemently disagree on the exact nature and extent of these processes. Later, the critical re-assessment of the historical and archaeological record led to the proposal of elaborate new models and theories, in which these changes were attributed to cultural change or new social orientations (such as the Merovingian-German, steppe nomadic Avar or Slavic expansion). What was the fate of the Roman provincial population after the collapse of the empire in Pannonia, Germania and Italia? How did this Romanised community become an ethnic component of early medieval kingdoms? What was the extent and scale of the arrival and settlement of ‘foreign’ (barbarian) peoples? How was coexistence achieved – was integration peaceful or hierarchical? Isotopic data and DNA from individuals offer a previously unknown, new perspective on past cultural phenomena through the geochemical and molecular biological patterns underlying them, which can significantly broaden the scope of historical and social historical interpretation. The rigorous examination of the direction and extent of mobility and migration, the study of changes in dietary habits, and the analysis of kinship relations through an integrated multidisciplinary analysis will provide a more detailed and deeper understanding of early medieval society than ever before. Currently, we can work with not only transect data, but also with the bioarchaeological record of entire cemeteries (communities) from the Migration period and the early Middle Ages (thanks to the HistoGenes project), which provide sufficient comparative material for a better understanding of European migrations and cultural transformations after the fall of the Roman Empire.

**994. KNOWING HOW BUT ASKING WHY. BIOLOGICAL ANSWERS TO ARCHAEOLOGICAL QUESTIONS ON A MEDIEVAL BURIAL GROUND FROM ROMANIA**

**Contribution format:** Oral  
**Contribution authors:** Franceska Stirbu – Gabriel Vasile – Alexandru Morintz („Vasile Pârvan” Institute of Archaeology)

The study is based on recent research conducted at Buftea – La Cârna/Mănești site, the largest known medieval burial ground from Wallachia. The inquiry examines the convergence of health, diet, and funerary practices in



Mediaeval Wallachia, exploring how cultural and social factors shaped community responses to crisis and transition. The bioarchaeological approach investigates patterns of disease (especially infectious markers), nutrition (differences in diet), and burial customs (the presence of double burials, reburials and grave goods). The bioarchaeological analysis raises critical questions about funerary traditions and potential crisis-related responses, such as epidemic outbreaks or shifting socio-religious beliefs. Additionally, differences in diet and burial treatment may reflect social stratification or adaptive cultural behaviours during periods of upheaval. This research underscores the importance of interdisciplinary approaches in understanding past societies, demonstrating how bioarchaeology and cultural studies together can illuminate broader patterns of human resilience and adaptation. The research is designed as a questionnaire with targeted inquiries to specific archaeological contexts documented in the burial ground. The questions focus mainly on some deviations from funeral ritual customs, like multiple burials, medical treatments of the body, and non-standard orientation of the graves.

817. CHRISTIAN PIONEERS –STRONTIUM ISOTOPE ANALYSIS OF PEOPLE BURIED AT THE EARLY CHRISTIAN SITE OF VARNHEM, SOUTHWESTERN SWEDEN

**Contribution format:** Oral  
**Contribution authors:** Crista Wathen – Fanny Bengtsson – Sven Isaksson (Stockholm University) – Maria Vretemark (Västergötlands Museum) – Gunilla Eriksson – Kerstin Lidén (Stockholm University)

The Christianization of Sweden (8th–11th centuries) was a period of political, social, and religious change, and it implies a period of movement and mobility. Excavations at the Varnhem estate church grounds (Kata Gård), with a church originally constructed around AD 1000 in Västergötland, Sweden, have yielded information about this period. Key findings include a large socially stratified cemetery, burial practices that indicate remnants of pre-Christian burial customs, and grave goods suggesting contact with other areas. This study builds on previous DNA and isotopic analysis, and with a focus on strontium isotopic analysis using Laser Ablation to examine minute changes in the lives of these early Christians buried at Kata Gård. Through these results, we found that a significant portion of the adult population was non-local, having spent their childhoods in other geological areas, while the children mostly exhibited local strontium isotope signatures. These findings highlight distinct mobility patterns and the societal impact of Christianization in this region, emphasizing Kata Gård’s importance in understanding Sweden’s religious transformation.

1666. FROM EPISCOPAL CATHEDRAL TO PARISH CHURCHES: RELIGIOUS AND POLITICAL SHIFTS AND UNDERLYING BIOLOGICAL CHANGES IN SANT PERE CHURCHES, TERRASSA, SPAIN

**Contribution format:** Poster  
**Contribution authors:** Lelaina Pauli (Biological Anthropology Unit, Universitat Autònoma de Barcelona, España) – Gemma Garcia – Antonio Moro (Museu de Terrassa, Barcelona, España) – Xavier Jordana (Biological Anthropology Unit, Universitat Autònoma de Barcelona, España) – Fabian Crespo (Department of Anthropology, University of Louisville)

The Sant Pere Churches are a monumental Romanic complex in Terrassa (Spain) built over the cathedral of Egara from the Visigoth period (4th to 8th centuries AD). Socio-cultural and political changes ended with the episcopal cathedral transitioning into parish churches (9th century). This transition was also influenced by a new power structure established by the Carolingian Empire in the early 9th century, impacting the economy, diet, and social fabric, ultimately compromising overall health and survival. We proposed that reconstructing skeletal inflammatory phenotypes could help study biological shifts during this historical transition. This study explores novel scoring criteria using periodontal diseases severity (PDS) and periosteal lesion severity (PLS) as a proxy to reconstruct skeletal inflammatory phenotypes in 74 individuals from the necropolis (4th to 11th centuries AD) of the churches of Sant Pere de Terrassa. PDS was determined by a combined score from cemento enamel–alveolar crest distance (CEJ-AC) and interseptal bone texture and shape (Kerr). PLS was determined by a combined score considering severity and coverage.PDS, estimated by CEJ-AC distances, was significantly higher in older adults (over 45 years) and in individuals buried within the church complex, while the Kerr Score showed no significant group differences. The combined PDS score (CEJ-AC + Kerr) was also higher in older adults. PLS final scores (coverage + severity) were significantly higher in individuals from the Visigothic period and in those buried outside the church complex. A significant positive association, PDS + PLS, interpreted as a proxy for systemic hyperinflammation, was found only in Carolingian burials outside the complex (N=8, r = 0.781, p = 0.022). The historical and political changes observed in the Sant Pere population could have differentially generated early life stress and diverse inflammatory profiles in adults, contributing to hidden heterogeneities associated with ill health or increased mortality risk.

97 EASTERN MEDITERRANEAN CITIES IN TRANSITION: NEW ARCHAEOLOGICAL PERSPECTIVES ON URBAN LANDSCAPE AND PUBLIC ARCHITECTURE FROM THE ROMAN TO BYZANTINE ERA

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** Roman and early-Byzantine Cities of Eastern Mediterranean, Urban Landscapes, Public Architecture, Resilience and Transformations, Ancient Architectural Restoration, Building Materials and Technology  
**Session organisers:** Sara Bozza (CNR - Istituto di Scienze del Patrimonio Culturale) – Paolo Maranzana (Boğaziçi Üniversitesi)

SESSION ABSTRACT

In recent decades, the transitional period between the Roman and Byzantine eras has garnered renewed attention due to significant advances in archaeology. Research has increasingly focused on urban centers and their monuments as key evidence for exploring both continuity and transformation from the Roman period to the early Middle Ages. Studies of Late Roman cities (3rd–7th centuries CE) have emphasized the remarkable resilience of urban spaces that endured challenges such as earthquakes, warfare, political and religious shifts. This session invites contributions on the resilience and transformations of urban centers and public architecture in the Eastern Mediterranean during this transitional period. We especially welcome submissions exploring new archaeological findings at urban, regional, comparative levels, and focusing on themes such as: 1. Maintenance and Renovation of Public Spaces: What happened to public spaces such as sanctuaries, agoras, theaters, baths, fountains? Can the analysis of these buildings’ biographies expand our understanding of the cultural and socio-economic needs behind new constructions as well as projects of restoration, maintenance, aesthetic refurbishment, redesign? 2. Urban ‘Replanning’ and Resilience: On an urban scale, how did building programs—demolition, restoration, refunctionalization, and the construction of new monuments and infrastructure such as city walls, streets, and aqueducts— reshape urban layouts and pathways? How did these initiatives foster the emergence of a new urban identity while preserving the cultural values embedded in the built heritage? How did cities demonstrate resilience by adapting or repurposing their monuments in response to disruptions? 3. Materials and Building Technology in Transition: We seek case studies exploring the role of building materials and technologies during this transitional period. What impact did evolving technical strategies and production procedures—large-scale use of bricks, recycling and incorporation of spolia, new supply chains of prefabricated architectural elements—have on building programs? What are the social and economic implications of these changes?

CONTRIBUTION ABSTRACTS

388. RESILIENCE AND TRANSFORMATION: THE LATE ANTIQUE RESTORATION OF THE MONUMENTAL NYMPHAEUM OF TRIPOLIS AD MAEANDRUM

**Contribution format:** Oral  
**Contribution authors:** Sara Bozza (CNR - Institute of Heritage Science) – Bahadır Duman (Pamukkale Üniversitesi) – Tommaso Ismaelli (CNR - Institute of Heritage Science) – Giacomo Casa (Sapienza Università di Roma | CNR - Institute of Heritage Science)

Thanks to Turkish-Italian collaboration\*, a multidisciplinary research project is conducting a reconstructive study and restoration of the Monumental Nymphaeum of Tripolis ad Maeandrum (Denizli, Türkiye), an ancient city at the crossroads of Lydia, Phrygia, and Caria. With its 40-meter façade and three orders of aediculae, the Nymphaeum, originally built in the 2nd century CE, was entirely reconstructed in the 5th century CE following a probable seismic collapse. This makes it an ideal case study for examining the resilience and transformation of urban centers during the transition from the Roman to the Byzantine era. Through detailed block analysis and archaeometric investigations, we demonstrate that the rear wall was rebuilt from its foundations using a new construction technique—small blocks and bricks replacing large blocks—while the hypostyle façade was reassembled using original elements with various adaptive strategies. These included reworking, repairing, modifying, and repositioning blocks within the architectural layout. The paper examines the strategies of this Late Antique restoration, highlighting both technical solutions—such as the selection of building materials and the reuse of earlier blocks—and the monument’s aesthetic renewal through newly carved elements. The Nymphaeum’s reconstruction, seamlessly integrated into the urban fabric of Tripolis, contributed to shaping a new urban identity while preserving its imperial-period built heritage. This case study offers insights into the interplay of continuity and transformation in public architecture, reflecting the evolving aesthetic, cultural, and socio-economic needs of the early Byzantine city. \* The ”Monumental Nymphaeum” project is supported by the Ministry of Culture and Tourism of the Republic of Türkiye, Denizli Governoship, Denizli Municipality, Pamukkale University, South Aegean Development Agency,



Buldan Municipality, and by CNR – Institute of Heritage Science (Joint Archaeological Laboratory and CHANGES Project) and the Italian Ministry of Foreign Affairs and International Cooperation.

2456. THE SO-CALLED “HARPY TOMB” AND THE MAKING OF A CHRISTIAN MONUMENT IN XANTHOS

Contribution format: Oral  
Contribution authors: Allison Kidd (The British Museum)

The so-called “Harpy Tomb” in Xanthos, erected in the early Classical period for a Lycian ruler, has been known almost exclusively for its enigmatic sculptural program in marble relief, situated atop a 6-meter-tall pillar monument. The monument’s afterlife has largely been overlooked, despite Charles Fellows’ description of the structure in 1838, which concluded that the tomb must have been inhabited by a Christian devotee—“perhaps a disciple of Simon Stylites”—due to the presence of crosses and a scroll on the interior faces of the marble slabs. This paper presents new research presently underway at the British Museum, which has verified that the interior of the tomb was decorated at least in part with a fresco. Although fragmentary, the fresco is of a high quality, included an inscription, and appears late antique in date. Its addition after nearly 1,000 years to the inner chamber of a tall pillar tomb, which itself overlooks the city’s ancient theatre, requires a reassessment of Xanthos’ late antique urban environment. The decision to locate this work in such a conspicuous place is hardly what one might expect of a member of an ascetic monastic order. What is more, it is located at the heart of the historic city centre but far from later urban development on a promontory to the west, which featured a grand basilica and monumental colonnaded streets. Although the Christian reinterpretation of this monument focused on its interior, the spectacle of accessing the tomb at such a height to complete a fresco must have been intended to draw public notice. By focusing on cultural values long-embedded in the built environment at Xanthos, this paper seeks to clarify decision-making strategies in the (re)creation of this monument and address the competing Christian identities that were on display in the city’s public architecture.

773. THE AMPHITHEATER OF PERGAMON: RISE, ADAPTATION, TRANSFORMATION AND FALL

Contribution format: Oral  
Contribution authors: Ihsan Yeneroglu (Technische Universität Berlin Fachgebiet Historische Bauforschung und Baudenkmalpflege | Deutsches Archäologisches Institut Istanbul, Pergamon Excavation)

The Amphitheater of Pergamon is one of the four known amphitheatres in Anatolia and the only one that has been systematically studied by an interdisciplinary team. This monumental structure, dating back to the Roman period, holds a significant symbolic meaning for Roman Pergamon, both due to its location and its architectural ensemble, which includes the theater and stadium around Musalla-Meralik Hill. Its construction between two slopes, on an active stream bed, represents a remarkable architectural and engineering challenge. Despite the irregularity of the natural topography, the amphitheater was built with a meticulously designed geometric plan, demonstrating the advanced architectural expertise of the period. Beyond its architectural monumentality, the amphitheater also played a crucial role in the Romanization of the city, serving as an important cultural and social symbol. However, with the establishment of Christianity as the dominant religion in Pergamon, the structure lost its original function. Over time, human-induced destruction and natural factors led to significant deterioration, yet the amphitheater remained an important landmark in the city’s historical and cultural landscape. Today, the study of the Amphitheater in Pergamon contributes significantly to our understanding of Roman architectural practices, urban development, and cultural integration in Pergamon. Its legacy endures not only in its surviving ruins but also in the historical narratives it helps to reconstruct, shedding light on the complex processes of adaptation and transformation that defined the ancient world.

1190. RESILIENCE AND URBAN TRANSFORMATION IN TREBIZOND FROM THE LATE ROMAN TO THE BYZANTINE PERIODS

Contribution format: Oral  
Contribution authors: Selin Sur (Middle East Technical University, Department of Architecture) – Ufuk Serin (Middle East Technical University, Department of Architecture | ANAMED Senior Fellow 2024-2025 (Spring), Koç University)

Trebizond (modern Trabzon) is one of the longest continuously inhabited cities on the Black Sea coast of Türkiye, with origins dating back to at least the Hellenistic period. It is also one of the few cities that seamlessly transitioned from its Classical past through the ‘Dark Ages’ (7th-9th centuries) into modern times without major settlement interruption. Unlike many other Byzantine cities that retreated to hilltop fortresses during the transition from Late Antiquity into the Early Middle Ages, Trebizond remained a prominent coastal stronghold. Although little archaeological evidence exists for the period before the 9th century, recent rescue excavations have revealed significant topographical transformations from Antiquity through the Middle Ages. Trebizond was a wealthy, fortified city until it was largely destroyed by barbarian tribes in the 3rd century. Literary evidence suggests

that the city struggled to recover until the 6th century when comprehensive restoration work of public buildings took place under Justinian (527-565). In the post-Classical period, the city’s dispersed character was remarkably preserved. Some pre-Medieval structures and open spaces, such as the Meydan, possibly associated with the site of the Classical and Medieval agora were preserved, modified, or repurposed. Moreover, the present research hypothetically identifies two main urban axes: one connecting the ancient port and the other linking the walled city to the agora, rather than the single axis previously suggested (modern Kahramanmaraş Caddesi). Based on architectural/archaeological, and literary evidence, and applying the methodology proposed by Charalambos Bouras (2002) for studying medieval Byzantine cities, this research uses GIS-based mapping and analysis to trace the urban evolution of Trabzon from the Late Roman period through the Byzantine Middle Ages. An examination of the city’s lost and surviving medieval structures will provide insights into Trebizond’s Late Roman and Early Byzantine layout (3rd-7th centuries) and the multi-layered nature of its resilient urban heritage.

325. BETWEEN CHANGE AND CONTINUITY – RECENT RESEARCH RESULTS ON THE DOMESTIC SCAPE OF LATE ANTIQUE MILETUS

Contribution format: Oral  
Contribution authors: Nadia Cahenzli (Hamburg University)

Despite the more than a century old history of research conducted at Ionian Miletus, buildings and developments of the Late Antique period have only started to interest scholars on a larger scale about a decade ago. As part of this development, sacral architecture has received special attention, whilst other building types, above all the large and manifold genre of housings, were left in darkness. Only recently, the revision of old excavation material succeeded to finally shed light on the long neglected domestic scape of Miletus that shall be presented in this paper. Based on the case study of what turned into an exceptionally large and wealthy equipped residence building around 500 AD, the paper will discuss a series of questions regarding the transformation period of Late Roman to Early Byzantine Miletus. The dichotomy of change and continuity will be one of the focal points during this examination, regarding building techniques and incorporated spoliated material as well as specific choices in layout and assemblage. Furthermore, their immediate effects on the city scape will be taken into account and the question whether they can be seen as reflections of socio-cultural developments that took place at that time will seek to be answered. As a result, both the ambivalent nature of concepts such as private and public, urban and domestic, and the significance of flexibility in Late Antiquity will become apparent.

40. SAMOS DURING LATE ANTIQUITY: AN EXAMINATION OF THE CITY’S TRANSITIONAL PHASE FOLLOWING THE EVENTS OF THE 7TH CENTURY

Contribution format: Oral  
Contribution authors: Georgia Delli (National and Kapodistrian University of Athens)

Samos during Late Antiquity emerged as a prominent trading harbor along the route to and from Constantinople. The city’s wealth is evidenced by the local production of its famous sweet wine, packaged in the distinctive Samos Cistern Type amphora. This product circulated throughout the empire’s markets, with archaeological finds discovered in locations such as Ravenna and Butrint. Additionally, it is likely that part of Samos’s prosperity derived from shipbuilding activities, a tradition that dates back to ancient times. The city’s elevated status within the empire is further underscored by inscriptional evidence of a small hippodrome located in the western part of the city. In the early 7th century, significant changes unfolded on the island. Archaeological finds indicate that around 625, a minor Persian incursion led to the destruction of parts of the city. Despite this event, daily life continued with minimal disruption. However, between 660 and 670, the island faced its first Arab incursion, marked by extreme violence that resulted in the near-total destruction of the city, including public buildings and monasteries. Consequently, many inhabitants sought refuge within the Eupalinos Tunnel for several years. Following these events, the urban layout of the city began to reflect the principles observed in the coastal cities of Asia Minor, as well as those in the eastern Aegean islands, Cyprus, and Crete. Utilizing spolia from their destroyed structures, the inhabitants constructed defensive walls, within which the early Byzantine city developed without a systematic organizational framework. Excavations from the previous century have revealed remnants of this city, showcasing a society that, despite enduring significant hardships, demonstrated remarkable resilience. Like islanders in other regions, they chose to persist in their way of life on the island, even amidst the tumultuous years that followed the 7th century.

1373. TRACING RESILIENCE: URBAN DYNAMICS IN CENTRAL ANATOLIA UNDER ROMAN RULE

Contribution format: Oral  
Contribution authors: Paolo Maranzana (Boğaziçi University)

The concept of resilience has recently gained prominence in the study of Roman urbanism, particularly concerning the “end” of Antiquity (ca. 4th–7th centuries CE). Despite their peripheral position within the Roman world,



cities in Central Anatolia—Pessinus, Ankara, and Amorium—not only endured but expanded in this period, especially during the late 5th and early 6th centuries CE. This growth was driven by a shift toward regional self-sufficiency, as long-distance trade, notably with the Black Sea, declined after the 3rd century CE. In response, local economies reorganized: rural settlement increased, and the production of food and goods intensified to support urban markets. By the mid-6th century CE, Central Anatolia had emerged as one of the most stable and productive regions of Roman Anatolia, largely insulated from the disruptions affecting coastal areas. However, the Arab invasions of the late 7th century CE disrupted this balance, triggering declines in agricultural output, rural settlement, and pottery production. This study examines the dynamics of resilience that sustained urban centers in Central Anatolia’s semi-arid landscape, emphasizing how economic adaptation, resource management, and regional integration fostered long-term stability within an evolving imperial framework.

1384. LIME KILNS BETWEEN DESTRUCTION AND CONSTRUCTION IN LATE ANTIQUE ASIA MINOR

**Contribution format:** Oral  
**Contribution authors:** Jessica Plant (University of Cambridge)

This paper investigates the transformation of urban sites in late antique Asia Minor through the lens of one form of pyrotechnology: the lime kiln. Occupying an ambiguous place between destruction and construction, these kilns have often been overlooked, on the one hand, or interpreted as an index of late Roman decline, on the other. I first conduct a brief historiographical survey of lime kilns in urban histories of the ancient Mediterranean. Where and when does this idea of lime kiln as a proxy of socio-economic challenge emerge? In light of recent scholarship on Roman recycling practices, in conjunction with the ancient economy, how can kilns illuminate what was distinctive about recycling in the late Roman world (e.g., Jacobs 2013; Munro 2016; Barker 2020; Duckworth and Wilson 2020; Munro 2024)? What can they reveal about entangled social environments where people dwelled, from the civic core with new sacred buildings, to the domus? In answering these questions, I turn to recontextualize kilns within their urban fabrics. I investigate the archaeological evidence from Asia Minor (e.g., Sardis, Sagalassos) in order to situate kilns in shifting urban contexts (as opposed to rural sites), for processes of building, dismantling, and recycling alongside inter-craft exchange (e.g., Murphy and Poblome 2021). What surfaces is a re-evaluation of the lime kiln as a nexus of skill and value which sheds light on late Roman practices of manipulating stone entities. This paper demonstrates how the kilns contributed to transforming urban environments through expertise and redefinition of material-architectural categories.

1571. SHIFTING URBAN LANDSCAPES: NEW INSIGHTS INTO LATE ANTIQUE EGYPTIAN SETTLEMENTS

**Contribution format:** Oral  
**Contribution authors:** Stefania Alfarano (University College London)

For years, archaeological research in Egypt has primarily focused on tombs and temples, leaving the study of urban landscapes and settlement dynamics relatively overlooked. This has limited our understanding of how cities and villages evolved, particularly during the Late Roman period, when many urban centres underwent significant transformations. The deterioration of archaeological evidence further complicates the reconstruction of these changes. Recent excavations and surveys have provided valuable insights into the reconfiguration of urban environments, revealing extensive construction and restoration efforts, particularly in the late 3rd and 4th centuries CE. In cities such as Hermopolis Magna and Antinoopolis, large-scale rebuilding projects marked a period of renewal. This transformation included the addition of new architectural elements, such as defensive walls and fortifications. The integration of fortifications into the urban landscape of cities and villages reflects the growing need to assert control over these centres, not only in response to political instability but also to ensure the supervision and continuity of trade networks. Another major shift was the construction of churches, which altered the cityscape and redefined public spaces, reflecting the increasing influence of Christian institutions. At the same time, abandoned areas and landfills became defining features of Late Antique urbanism. Some districts, abandoned due to shifting socio-economic conditions, were transformed into regulated quarries for material reuse, illustrating how urban decline and redevelopment coexisted. These spaces provide key insights into the complexities of cities in transition. This paper examines how the introduction of new infrastructure, the systematic reuse of building materials, and the transformation of abandoned spaces shaped the identity of Late Antique Egyptian cities. By integrating archaeological and documentary data, it aims to offer a clearer perspective on urban adaptation and resilience during the later Roman period.

2089. DECLINING URBANISM AND IMPERIAL EXPLOITATION: ACHAIA PHTHIOTIS BETWEEN THE HELLENISTIC AND ROMAN PERIODS

**Contribution format:** Oral  
**Contribution authors:** Edward Middleton (McMaster University) – Margriet Haagsma (University of Alberta)  
Sophia Karapanou (Ephorate of Antiquities, Larissa) – Adam Woznura (University of Groningen) – Vladimir Stissi (University of Amsterdam)

The region of Achaia Phthiotis, located in south-western Thessaly, experienced major shifts in its rural/urban demographic division over time. The Hellenistic period saw major investment and the foundation of new urban centers under the Successors of Alexander the Great, in an attempt to control territory during the turbulent dynastic struggles of the period. Yet many of these settlements were quickly abandoned, due to shifting political, military, and social concerns. At the same time, the transition from the Hellenistic period to the control of the region under Roman provincial rule introduced news shifts in the demographic patterns that remain poorly understood. Drawing on new data recovered by the Central Achaia Phthiotis Regional Survey (CAPS) between 2019 and 2024, this study focuses on shifting patterns of urbanism in Achaia Phthiotis, with a focus on the microregion surrounding the Hellenistic era settlement of Kastro Kallithea. Based on a preliminary analysis of diachronic ceramic distributions across the geographic region, we conclude that the region saw a shift away from centralized urban settlements, such as at Kastro Kallithea, to more dispersed farmsteads in the surrounding hinterland. Based on the recovery of ceramic remains, this new settlement pattern continued to focus on agriculture, while shifting its trade connections to more distant urban centers like Pharsalos or ports on the Pagasetic Gulf. As a result, we see areas of intense, but dispersed agriculture, characterised by late Roman storage wares and grinding stones. This shift may represent the changing nature of agricultural exploitation within the region: the movement away from smallholder farmers who owned property both within the urban center of Kastro Kallithea in favor of more diffuse Roman-era farmsteads, exploiting the landscape now under the control of the Roman Empire.

434. “URBAN HUBS” IN THE COUNTRYSIDE: FRAMING THE DEVELOPMENT OF SEMI-URBAN SETTLEMENTS IN THE 3RD AND 9TH CENTURY AD NEAR EAST

**Contribution format:** Oral  
**Contribution authors:** Nicolo Pini (Université libre de Bruxelles - CReA-Patrimoine | Fonds de la Recherche Scientifique - FNRS)

The paper illustrates the preliminary results of the project “‘Urban hubs’ in the Countryside: framing the development of semi-urban settlements in the Near East between the 3rd and 9th Century AD.”, funded by the Belgian FNRS and conducted at the Université libre de Bruxelles. The project aims to investigate the development of a considerable number of settlements in the countryside with mixed urban and rural features, a phenomenon that seems to characterise the Near East at least from the 3rd until at least the 9th century AD. Although studied in different regions and for different periods, and despite evidence for single case studies being relatively abundant across the Near East, a synthetic overview of the phenomenon is still missing. It is, therefore, a challenge to understand conditions and ways under which the phenomenon could be triggered and developed, distinguishing regionally specific from broader and trans-regional processes. A possible methodological solution has been a tighter integration of site-focused archaeological and architectural with broader landscape analyses, aiming to track the parallel development of the settlements with their hinterland. The paper will illustrate a series of sites from the former Roman provinces of Arabia and Palaestina, where extensive fieldwork has been conducted. In particular, remote sensing techniques have played a key role, particularly in combining UAV-based and terrestrial photogrammetry. Even though a globally valid explanation of the emergence of this typology of sites remains complex to support due to the uneven documentation available for all regions in the Near East, these proposed case studies are interesting methodological references and represent a sound basis for establishing a progressively broader comparative analysis.

100 CAVES AND ROCK SHELTERS: THE INTERACTIONS OF PEOPLE AND NATURAL ENVIRONMENT IN THE PREHISTORY

**Session theme:** 7. Climate Change in the Past and Present  
**Session format:** Regular session  
**Session keywords:** Karstic regions, Sandstone areas, Pleistocene, Holocene, Hunter-gatherers, Climatic change  
**Session organisers:** Katarína Kapustka (Institute of Archaeology of the CAS, Prague) – Mária Hajnalová (Constantine the Philosopher University in Nitra) – Adrián Nemergut (Institute of Archaeology of the Slovak Academy of Sciences) – Akós Petö (Hungarian University



SESSION ABSTRACT

This session aims to explore the adaptation strategies of hunter-gatherer communities to one of the most dramatic climate-environmental changes around the Pleistocene/Holocene transition. The sheltered archaeological sites (caves and abris) are one of the best archives of evidence for studying human-environmental interactions. The session will focus on the hunter-gatherer communities during the Upper Palaeolithic and Mesolithic periods. Special attention will be given to the use of plants and animals as evidence for shaping natural resources by the forager communities. We would like to invite all researchers who encounter this topic both in humanities (archaeology, anthropology, ethnography) and natural sciences (botany, zoology, palaeoecology, and similar disciplines). We will especially appreciate contributions focused on methods how to detect the direct evidence of human-environment interaction, which is often difficult to grasp. We usually have the record of the environmental characteristics on the one hand and on the other hand we have information about the cultural characteristics of the human past. It is difficult to link them together. By examining assemblages of plant and animal remains, together with archaeological finds in the caves and under the rock shelters, the session will provide valuable insights into the adaptive responses of hunter-gatherers to environmental transformations, offering a deeper understanding of the resilience and ingenuity of these early human societies in the face of environmental change.

CONTRIBUTION ABSTRACTS

1306. HUMAN-ENVIRONMENT INTERACTIONS IN THE SABANA DE BOGOTÁ: GEOARCHAEOLOGICAL AND PALEOPEDOLOGICAL EVIDENCE DURING THE PLEISTOCENE-HOLOCENE TRANSITION

**Contribution format:** Oral  
**Contribution authors:** Diana Santana (Instituto de Geología, Universidad Nacional Autónoma de México) – Angélica Triana Vega (Instituto de Geología, Universidad Nacional Autónoma de México) – Elizabeth Solleiro Rebolledo (Instituto de Geología, Universidad Autónoma de México) – Sergey Sedov – Jaime Díaz Ortega (Instituto de Geología, Universidad Nacional Autónoma de México)

The study of paleosols is essential for understanding extinct landscapes and environments (Retallack, 2001). These records contain distinctive features that testify to human activity, providing anthropogenic information on adaptations, landscape transformations and human activities preserved in pedosedimentary archives. In this context, the landscape of the Sabana de Bogotá (Colombia) represents a mosaic of pedosedimentary sequences that reflect processes of landscape, climatic and environmental stability and instability, while also containing a significant archaeological record. This region is of central importance in the process of South American dispersal and settlement, as it was home to some of the earliest populations to occupy Colombian territory (Tibitó, El Abra, Tequendama and Aguazuque), where soils show the effects of different human activities and environmental conditions. This research aims to reconstruct the human-environment relationship during the Late Pleistocene-Holocene transition at the Aguazuque and Hyká Aeiwi sites through geoarchaeological and palaeopedological studies. Chemical, physical and morphological analyses were carried out on natural and archaeological soils. Key findings include human bone remains (~11,000 cal yr BP) and paleosols, which highlight the interaction between climatic fluctuations, landscape dynamics and human adaptation. The transition from cold-dry to warm-humid conditions facilitated shifts in settlement patterns and subsistence strategies, as evidenced by archaeological and pedological records. Despite environmental challenges such as volcanic activity and drought, human resilience is reflected in the transformation of hunter-gatherer groups into agricultural societies, marking a turning point in cultural and environmental interactions during the Holocene.

1374. THE REINDEER CONNECTION: DIET, MIGRATION AND HUMAN ADAPTATION IN THE UPPER PALAEOLITHIC IN POLAND

**Contribution format:** Oral  
**Contribution authors:** Oliwia Oszczepalinska – Nina Kowalik – Sylwia Pospuła (Institute of Systematics and Evolution of Animals, Polish Academy of Sciences) – Alexander Pryor (Department of Archaeology and History, University of Exeter)

During the Upper Paleolithic, reindeer Rangifer tarandus were an important species in the ecosystems of Poland's steppe-tundra. Their seasonal migrations, influenced by climate and topography, shaped human subsistence strategies. Reindeer adapted to environmental fluctuations through dietary flexibility, feeding on green plants in summer and lichens, moss, and bark in winter. Their ability to dig food from under the snow allowed them to survive harsh winters. In this study we investigate mobility, diet and season of death of reindeers from selected

Palaeolithic sites located in South Poland. These locations characterize abundance of archaeological and zooarcheological material including reindeers and were connected to human activities, which suggests that humans may have exploited the migratory behaviour of these animals to hunt them, migrated with them and/or settled along their migration routes. Strontium isotope analyses provided detailed records of animal movements and revealed differences in their mobility patterns. Our data indicates that at some locations, reindeer migrated over long distances, while at others, their movement was confined to a more local area. Reindeer may have moved from different directions, suggesting the possibility of distinct migratory groups rather than a single uniform herd moving in the same direction. Conducted microwear analysis of teeth from studied sites confirms seasonal dietary adaptations, reflecting the steppe-tundra flora, while the season of death analysis provides additional context to this study. Acknowledgments This research is conducted within the ERC CoG project “Exploring Mammoth Bone Accumulations in Central Europe” (MAMBA) number 101045245, led by dr. hab. J. Wilczyński from the Institute of Systematics and Evolution of Animals, Polish Academy of Sciences in Kraków.

1857. TECHNO-FUNCTIONAL ANALYSIS OF THE SOLUTREAN LITHIC ASSEMBLAGE FROM POÇO ROCK SHELTER (LEIRIA, PORTUGAL)

**Contribution format:** Oral  
**Contribution authors:** Pedro Peça (Centro de Geociências | Universidade Autónoma de Lisboa | Laboratório de Arqueociências, Património Cultural, I. P. | Instituto Politécnico de Tomar) – Telmo Pereira (Centro de Geociências | Universidade Autónoma de Lisboa | Centro de Arqueologia da Universidade de Lisboa - Uniarq | Instituto Politécnico de Tomar) – Marina Igreja (Laboratório de Arqueociências, Património Cultural, I. P.) – Pedro Cura (Centro de Geociências)

The River Lis basin is one of the westernmost refuges for human occupation during the Last Glacial Maximum (LGM) on the Iberia Peninsula. It is characterized by a network of narrow canyons formed by the fluvial erosion of the Estremadura Limestone Massif, which forms a peculiar ecosystem and a natural sheltered territory against the climatic severity driven from the Marine Isotope Stage (MIS) 2. Poço Rock Shelter is located in one of those narrow karstic canyons, the Ribeira das Chitas. This site was found in 2002 and has been systematically studied since 2015 in the scope of the EcoPLis project, that aims to access the ecodynamics of the hunter-gatherer communities in this particular biotype cluster. The site has at least three horizons, one Epipaleolithic and two Solutrean. The Solutrean levels are rich in lithics and poor in fauna. The lithic assemblages comprise quartzite, quartz, but is dominated by chert, being this last component made mostly of by-products as incomplete and fragmented bifacial tips, fragments and chips. This is indicative that the site functioned as a workshop site directly dependent from the nearby chert sources. However, it is still unclear if the site had any other function and if artefacts such as blades, bladelets and retouched tools were used and for what purposes. Here, we present the first combined results of the technological, typological and Use-wear analysis of the lithic Solutrean assemblage aiming to clarify the functionality of the site between 23708–22900 and 22744–22210 cal BP. This data is expected to enrich the knowledge about human survival during the LGM in the Estremadura cluster.

1260. PINPOINTING PREHISTORIC SITES AND RESOURCES ACROSS THE RIVER LIS BASIN (WESTERNMOST IBERIA)

**Contribution format:** Oral  
**Contribution authors:** Telmo Pereira (Universidade Autónoma de Lisboa) – Telmo Gomes (SMAS - Serviços Municipalizados de Água e Saneamento de Leiria) – Eduardo Paixão (ICArEHB - Interdisciplinary Center for Archaeology and Evolution of Human Behaviour) – David Nora (—) – Patrícia Monteiro (Laboratório de Arqueociências, Património Cultural, IP) – Carlos Simões (ICArEHB - Interdisciplinary Center for Archaeology and Evolution of Human Behaviour) – Sandra Assis (CRI. - Centro em Rede de Investigação em Antropologia | CRIA - Center for Research in Anthropology) – Alexandre Paya (Rococo, Cultura com Estilo, Lda) – Vânia Carvalho (Museu de Leiria) – Vanessa Antunes (Centro Português de Geo-História e Pré-História)

Resources and ecology were crucial in shaping hunter-gatherer settlements in central western Iberia. The unique latitude and Atlantic influence over his region combined these features and ensured population clustering throughout Prehistory, the preservation of diverse archaeological contexts while obliterating others. The EcoPLis project, conducted between 2015 and 2025, significantly enhanced our understanding of prehistoric occupation and mapped the resources' location. The region included coastal and river plains (the first expanding and contracting as the sea level rose and dropped), dry plateaus with sparse endemic vegetation, and narrow canyons with thriving ecosystems. Key abiotic resources comprise freshwater springs, sources of salt and chert, quartz-rich gravels, and numerous caves and rock shelters. Archaeobotanical and zooarchaeological evidence



confirms a diverse landscape that supported both Mediterranean and Eurosiberian species fluctuating according to the climatic cycles, which created favourable conditions for human settlement. Upper Paleolithic contexts appear across all settings, often found beneath shell-rich Epipaleolithic layers (when in rock shelters) and Early Prehistoric burial grounds (when in caves). Notably, the project uncovered several caves with burial grounds and shell-rich occupations but had difficulties in finding Lower and Middle Paleolithic contexts. Our findings indicate two main characteristics. One is that the best-preserved deposits are typically hidden under a covering flourishing vegetation, while easily visible sites (usually rock shelters) often suffer from sediment erosion that could have preserved archaeology and supported the covering vegetation. Another characteristic is the recurrent presence of campsites where both abiotic (particularly freshwater) and biotic resources would be concentrated, and of specialized sites where specific resources occur. In these cases, chert outcrops stand out for their sizes and artefact density. Here we present an updated map of archaeological sites and resources to deepen our understanding of the relationship between hunter-gatherers and their landscape.

**2426. EXPLORING PALAEOECOLOGICAL DYNAMICS IN THE LATE UPPER PALEOLITHIC OF EASTERN SICILY**

**Contribution format:** Oral  
**Contribution authors:** Maria Rosa Iovino (Italian Institute of Human Paleontology) – Italo Biddittu – Luciano Bruni (Italian Institute of Human Paleontology) – Roberto Ceccacci (Independent Researcher) – Salvatore Chilardi (The International Research Institute of Archaeology and Ethnology) – Marina De Angelis (University of Buenos Aires) – Luca Natali (Italian Institute of Human Paleontology) – Daniele Spigarelli (Independent Researcher) – Simona Pianese (Italian Institute of Human Paleontology) – Daniela Zampetti (Sapienza University of Rome)

This study examines the complexities surrounding human-animal interactions during the Late Upper Paleolithic in eastern Sicily through the analysis of faunal remains, lithic tools, and bone implements. The period is characterized by a lack of clarity regarding the size and distribution of human populations, complicating interpretations of anthropogenic impacts on local fauna. While quantitative and qualitative analyses of faunal remains can yield estimates of animal populations and their exploitation by humans, the demographic parameters of contemporary human groups remain largely elusive. The examination focuses on several archaeological sites, both caves and rock-shelters, with different geological and altitude location, where faunal assemblages provide insights into subsistence strategies and ecological contexts. Although not from all sites paleobotanical evidence were rescued, the diversity of herbivorous species identified allows for the formulation of hypotheses regarding suitable habitats and ecological niches present in the studied areas. For instance, the presence of large herbivores suggests varied environments, potentially ranging from open grasslands to more forested regions, which would have influenced human foraging strategies. By correlating the types of lithic and bone tools with the faunal evidence, this research aims to elucidate the technological adaptations of Late Upper Paleolithic populations in response to their environment and available resources. Furthermore, the study highlights the interdisciplinary methodological challenge that combines archaeological, bioarcheological, geological, ecological and behavioural approaches to better understand the intricate relationship between prehistoric people and their ecological environment in eastern Sicily.

**1035. MESOLITHIC LANDSCAPES OF BELIANSKE TATRY MTS (SLOVAKIA)**

**Contribution format:** Oral  
**Contribution authors:** Maria Hajnalova (Constantine the Philosopher University in Nitra)

In Slovakia the palaeoecological data that would enable the reconstruction of the environment - especially the vegetation and images of landscapes from the transitional period between the Plesitocene and Holocene are extremely rare. New light can bring the plant macro- and micro-remains recovered from the sediments of the Huciva diera rock shelter in Belianske Tatry Mts. It was unearthed and systematically sampled during the excavation of Polish and Slovak team in 2022 and radiocarbon dated to the 13th-12th millennium cal BC. In this paper we aim to present the results of analyses of anthracology (wood charcoal) and palynology. The images of the vegetation and landscapes reconstructed by the two studied proxies will be presented. The main focus on the talk will be on the interpretation and the reasons why the two proxy datasets provide different results - paint different landscape images, whether those are exclusive (or not), and what next steps should be taken to validate the results and their interpretation.

**907. THE INTERACTIONS BETWEEN PEOPLE AND THE NATURAL ENVIRONMENT DURING PREHISTORY IN THE RUŽÍN KARST (EASTERN SLOVAKIA)**

**Contribution format:** Oral  
**Contribution authors:** Adrián Nemergut (Institute of Archaeology, Slovak Academy of Sciences, Nitra) – Marián Soják (Institute of Archaeology, Slovak Academy of Sciences, Spišská Nová Ves) – Mária Hajnalová (Constantine the Philosopher University in Nitra) – Marianna Kováčová (Comenius University, Bratislava) – Lenka Lisá (Institute of Geology, Czech Academy of Sciences, Praha) – Monika Orvošová (Slovak Museum of Nature Protection and Speleology, Liptovský Mikuláš) – Tomáš Čejka (Institute of Botany, Slovak Academy of Sciences, Bratislava) – Tomáš Čeklovský – Ján Obuch (Slovak Museum of Nature Protection and Speleology, Liptovský Mikuláš)

Several caves with evidence of prehistoric occupation are known in the Ružín Karst (SE Slovakia). The most famous are Veľká ružínska Cave and Medvedia Cave. Research of this sites began in the 19th and continued into the 20th century. During the new excavation (2022-2023), Miriama rock shelter was excavated. Despite the small area of test pit, significant archaeological, paleobotanical and paleontological remains were recovered. Sediment deposits were formed between 9300–4700 uncal BP. The occupation horizons are related with the Mesolithic, Neolithic and Eneolithic periods. In this paper, we present the results of the multi-proxy data analysis of faunal and floral remains, which are effective in reconstructing regional climatic conditions. The Miriama rock shelters provide an excellent opportunity to understand the interactions of the last hunter-gatherers/the first farmers and natural environment during the Early Holocene. This work was supported by the Slovak Research and Development Agency under Contract No. APVV-23-0282 and project VEGA 2/0033/23.

**51. SITE SKALICE NEAR MĚŇANY (CZ) WITHIN THE CONTEXT OF THE FINAL PALEOLITHIC AND MESOLITHIC SETTLEMENT OF BOHEMIAN KARST**

**Contribution format:** Oral  
**Contribution authors:** Katarína Kapustka (Institute of Archaeology of the CAS Prague)

The hunter-gatherer settlement of Bohemian karst has been studied for a long time and this region contains important settlement and funeral findings. They are present in different landscape types under rock shelters, in caves, and as open-air sites too. Bohemian karst is a rich source of archaeological evidence and a place of many important palaeoecological sites. Unfortunately, information about the natural environment and its changes is not always linked to our knowledge of material culture and its transformations. We want to begin to service this debt. As the case study was chosen the rock-shelter Skalice (near Měňany). It is situated close to the area of the former Měňany lake. The human occupancy of the site is evidenced at the end of the Palaeolithic and during the Mesolithic period, which until now has been only exceptionally recorded in the Bohemian karst. During the Pleistocene/Holocene transition, this place witnessed several important changes. A rich paleontological samples obtained from the site by a series of excavations from 2007 to 2016 provides a robust record of the paleoenvironmental development, particularly for the period from 13 000 to 6 000 cal BP. The respective biostratigraphic sections yielded also some archaeological finds, namely lithics. We would like to frame new information about sites to the summary of what is known about the Mesolithic occupation from previous research. To have a better understanding of the region we focused on two aspects 1) radiocarbon dating of the sites and 2) linking archaeological and palaeoecological records.

**2051. INTEGRATING USE-WEAR AND MICROSCOPICAL RESIDUE ANALYSES ON MESOLITHIC TOOLS – CASE STUDIES FROM CENTRAL EUROPEAN ROCK SHELTERS**

**Contribution format:** Oral  
**Contribution authors:** Kristýna Budilová (Laboratory of Archaeobotany and Palaeoecology, Faculty of Science, University of South Bohemia)

Identification of a direct evidence for the specific use of stone tools is a key challenge of a current prehistoric archaeology. With the refining of the use-wear and residual analyses, a better understanding of the toolkit seems to be possible. This poster presents results of the use-wear analysis performed on lithic tools from the Mesolithic rock shelters in the Czech Republic (Bohemia), which were also sampled for analysis of micro-residues (mainly phytoliths, fibers and starch grains) adhering their surfaces. The tools were chosen mostly from the radiocarbon dated context with clear chronological association. The samples were taken directly as residues visible under binoculars and subsequently also by sonification, while the use-wear was documented by a digital microscope. The contribution discusses the gained results, as well as suitability of the chosen methodology and limitations for the interpretation. Use for plant processing was proposed for some of the tools, which shall be further specified by future application and integration of those methods on bigger sets of the same types of lithic industries.



79. HUMAN-ENVIRONMENT INTERACTIONS IN LATE UPPER PALAEOLITHIC ISTRIA (CROATIA): INSIGHTS FROM ZOOMS ANALYSIS OF FAUNAL REMAINS

**Contribution format:** Poster  
**Contribution authors:** Lia Vidas (Centre for Applied Bioanthropology, Institute for Anthropological Research, Zagreb) – Sara Silvestrini (Department of Cultural Heritage, University of Bologna) – Federico Lugli (Department of Chemical and Geological Sciences, University of Modena and Reggio Emilia) – Siniša Radović (Institute for Quaternary Palaeontology and Geology, Croatian Academy of Sciences and Arts) – Stefano Benazzi (Department of Cultural Heritage, University of Bologna) – Ivor Janković (Centre for Applied Bioanthropology, Institute for Anthropological Research, Zagreb)

The abundance of caves and rock shelters on the karstic Istrian peninsula has preserved evidence of human activities during both the Holocene and Pleistocene epochs. The archaeology of Palaeolithic hunter-gatherers remains a fascinating subject, raising numerous questions about human-environment interactions, often explored through the analysis of faunal assemblages. However, faunal material from this period is frequently highly fragmented, limiting morphological archaeozoological analyses. To address this challenge, various palaeoproteomic methods, including ZooMS analysis, are increasingly applied to osseous material, providing deeper insights into prehistoric human behavior and faunal composition. In this study, we present current data from ZooMS analysis of non-diagnostic osseous fragments from two cave sites in Istria, Croatia: Ljubićeva pećina and Pupićina peć. Both sites date to the late Upper Palaeolithic period, offering an opportunity to investigate the changing post-LGM environment and human adaptations. Their proximity, yet distinct topographical settings, allow us to examine how these factors influenced ecosystems and subsistence strategies at that time. In addition to analyzing the taxonomic composition of the assemblages, we assess the relative preservation state of collagen through glutamine deamidation calculations. The obtained results show certain differences in the taxonomic composition of faunal remains between the sites. Also, the collagen preservation differs slightly but seems to have a major influence on the resolution of the results. The described approach allowed us to identify osseous fragments that would otherwise remain undetermined and thus granted better insight into the region’s environmental and climatic conditions, changes in human subsistence strategies, selectivity, seasonality, and site-occupation intensity.

399. THE OPEN-ACCESS DIGITALIZED OSTEOLOGICAL COLLECTION OF IPHES-CERCA

**Contribution format:** Poster  
**Contribution authors:** Brice Lebrun – Javier Sopesens Aixalà (Catalan Institute of Human Paleoecology and Social Evolution (IPHES-CERCA) | Area of Prehistory, Rovira i Virgili University) – Antonio Rodríguez Hidalgo (Unit Associated with CSIC, Department of Paleobiology, National Museum of Natural Sciences | Catalan Institute of Human Paleoecology and Social Evolution (IPHES-CERCA)) – Palmira Saladié Ballesté (Catalan Institute of Human Paleoecology and Social Evolution (IPHES-CERCA) | Area of Prehistory, Rovira i Virgili University | Spanish National Research Council, Institute of Archaeology-Mérida (CSIC-Junta de Extremadura))

The COR-IPHES osteological reference collection, established during the 1980s–1990s, currently holds over 300 individuals of 80 species, primarily representing mammals and large birds. It includes rare fauna, such as the Iberian lynx and the griffon vulture, which provide a highly valuable comparative framework. This collection allows researchers to accurately identify a wide diversity of taxa, serving as an essential resource for advancing zooarchaeological and paleontological investigations and broader studies in prehistoric research. To enhance accessibility and align with contemporary open-science principles, the collection is undergoing an extensive digitization process employing a custom photogrammetry protocol. The developed approach presented in this poster, rapid yet precise, enables the production of high-quality 3D model, even for bones with challenging geometries and sub-optimal surface aspect. Adhering to FAIR guidelines (Wilkinson et al., 2016), the project employs Darwin Core standardized metadata (Wieczorek et al., 2012), open file formats, free software tools, and trusted online repositories under creative common licence, to promote transparency, collaboration, and long-term reusability of data in accordance with open-science principles. In doing so, the digital COR-IPHES collection aim to become a key online ressource for researchers studying prehistory and its interconnected fields of investigations. In conclusion, this poster illustrates a valuable open-science initiative, enabling zooarchaeologists and researchers in related fields to access a high-quality osteological reference collection from anywhere.

1845. SPELEOTHEMS AS ARCHIVES OF HUMAN OCCUPATION

**Contribution format:** Poster  
**Contribution authors:** Sophie Verheyden (Royal Belgian Institute of Natural Sciences - RBINS) – Christian Burlet – Soraya Bengattat (Royal Belgian Institute of Natural Sciences) – Hans Vandendriessche (Department of Archaeology, Ghent University) – Hai Cheng (Institute of Global Environmental Change, Xi’an Jiaotong University | Institute of Earth Environment, Chinese Academy of Sciences) – Xue Jia (Institute of Global Environmental Change, Xi’an Jiaotong University) – Philippe Crombé (Department of Archaeology, Ghent University)

Speleothems are increasingly used in archaeological studies for their precise chronological framing via U-series dating, covering much longer periods than the 14C method. Archaeological interest in these cave sediments grew even more since the discovery of a 176.5 ka-old speleothem structure in the Bruniquel cave (France, Jaubert et al., 2016). Broken stalagmites in the St Marcel cave in France, attributed before to tourists, are also linked to prehistoric activity between the end of the Upper Palaeolithic and the European Mesolithic (Delannoy et al., 2024). Moreover, speleothems may contain soot layers enabling the study of duration and frequency of human occupation (Vandevelde et al., 2018). In Belgium, speleothems from the entrance area of the Han-sur-Lesse and the Remouchamps caves also contain black deposits interpreted as soot incorporated in the calcite. Speleothems enable the precise dating of these deposits and thus of the related human occupation. In the Han-sur-Lesse cave soot layers were related to the use of torches during the last 200 years (Genty et al, 1997; Verheyden et al., 2006). However, other older soot layers are also present and are currently investigated. Remouchamps speleothems from the RBINS collections, previously studied in the 1980s by M. Gewalt for U-series dating and palaeoclimate studies, are now analyzed for their black layers. Soot deposits in the calcite (U/Th) date to between 11.0 ka and 9.3 ka, suggesting human activities in the entrance zone during Early Holocene. This seems a little later than a known occupation around the late Younger Dryas and Early Mesolithic (Crombé et al., 2024). Moreover, the cause of a breakage of the stalagmite at ~77ka , human activity or natural factors (e.g., frost, earthquakes, animals) remains uncertain. These speleothems are being studied as part o. the UGent-KBIN joint Meuse Basin project, financed by the Research Foundation Flanders – project G0C9323N.

1864. AN INTERDISCIPLINARY METHODOLOGY FOR DISCERNING HOMININ CAVE USE AND HUMAN-ENVIRONMENT INTERACTIONS IN THE LATE PLEISTOCENE CARPATHIANS

**Contribution format:** Poster  
**Contribution authors:** Alexander Wilkinson – Wei Chu (Universiteit Leiden)

Understanding the nature of cave site use impacts how we perceive human mobility, settlement dynamics, and human-environment interactions in the Late Pleistocene. The Late Pleistocene occupation of caves in Western Romania presents some of the first Hominin occupational deposits in Europe. However, many Carpathian caves are absent of dense Late Pleistocene Hominin features, causing difficulty in assessing their role as shelters. Low density of Hominin deposits at some Romanian caves might suggest more ephemeral occupations or a different function of caves in contrast to other areas Europe. Hominin cave use is additionally contrasted by the presence of regional open-air sites. Copious legacy excavations, and a dearth of securely dated anthropic deposits, cause difficulties in correlating patterns of cave use between sites in Western Romania and to the climate events of the Late Pleistocene. Therefore, the question of cave use within potential Hominin sheltering strategies requires the revisitation of legacy excavation data, contemporary excavation methodologies and analysis to be answered comprehensively. This contribution will display a newly proposed methodology to be undertaken at cave sites in Western Romania. Through excavation and an integrated inter-disciplinary analysis of fauna, artifacts and sediments, this research aims to assess hypotheses of cave use and sheltering dynamics. Additionally, cave use needs to be compared and correlated to contemporary open-air sites of the region to situate caves within wider Hominin occupation dynamics. Understanding cave use and their role within wider habitation strategies is important for discerning behavioural sheltering adaptations that contributed to Hominin survival in the adverse and variable climates of Late Pleistocene Europe. Proposed inter-disciplinary research provides a unique opportunity to disentangle occupation palimpsests to understand diachronic cave use, sheltering choices, and human resilience across the climatic fluctuations of the Late Pleistocene.



101 SHIFTING PARADIGMS: THE MULTIPLE FACETS OF MOBILITY IN THE BRONZE AGE BALKANS

Session theme: 8. Along and across the Danube!  
Session format: Discussion session  
Session keywords: Mobility, Archaeological Methodology, Bronze Age, Balkans, Ethnography  
Session organisers: Regina Uhl (Eurasien-Abteilung, Deutsches Archäologisches Institut) – Zoï Tsirtsoni (Centre national de la recherche scientifique) – Maja Gori (Consiglio Nazionale delle Ricerche)

SESSION ABSTRACT

The Balkan region has played a crucial role in population movements and the spread of innovations throughout European prehistory. Building on the foundation laid by the ‘MOBAB’ (Mobility in Bronze Age Balkans) project (2022-2024), this session aims to stimulate new perspectives on this topic. The MOBAB project examined various aspects of mobility during the Bronze Age (4th-2nd millennia BC), focusing on:

1. The temporal patterns of documented movements
2. Environmental influences
3. The transmission of artifacts and technologiesWe invite papers that challenge conventional concepts of mobility, exploring social characteristics and diverse trajectories.

Methodological approaches include:

1. Examining temporal scales of mobility
2. Investigating the relationship between mobility, innovation, and the transfer of artifacts and technologies
3. Utilizing ethnographic and recent historical examples, as well as further studies in pre- and protohis tory, to provide fresh insights
4. Innovative methods for integrating archaeological and ethnographic data with hard science approaches and computational methodologies to trace patterns of mobility

Key themes for discussion include:

- Cultural factors influencing various types of mobility
- The impact of environmental features, sea- and landscapes in fostering connections and movements across the Balkan region
- Methodological approaches for detecting and interpreting mobility in the archaeological record.

The aim is to refine our archaeological reconstructions and provide new insights into mobility, which may be beneficial for future research in prehistoric mobility.

CONTRIBUTION ABSTRACTS

1585. POTTERY MAKING AND MOBILITY DURING THE EARLY BRONZE AGE IN SOUTHERN BULGARIA

Contribution format: Oral  
Contribution authors: Masao Semmoto (The Ancient Orient Museum, Tokyo)

A cultural landscape comprising tell and flat settlements, along with flat cemeteries and burial mounds (kurgans), was prevalent in the southern Bulgarian region during the Early Bronze Age (3200-2200/2000 BC). The formation of this landscape is attributed to the varying degrees of mobility exhibited by local and non-local populations. During the early stages of the Early Bronze Age (late 4th millennium BC to early 3rd millennium BC), groups belonging to the Pre-Yamnaya and Yamnaya cultures, thought to have originated from the northern Black Sea steppe region, immigrated to the area and engaged in interaction with local populations while building burial mounds. In the later stage of the Early Bronze Age (late 3rd millennium BC), when the Yamnaya culture was in decline, metal products and other artifacts brought into the region indicate that local groups in southern Bulgaria had contact with early urban communities in the Anatolian-Aegean region to the south. This unidirectional influx of groups, artifacts, and technologies from external sources during the Early Bronze Age in South Bulgaria was accepted by the local society, although perhaps not necessarily all elements. However, the interpretation of this phenomenon, particularly concerning artifacts, has frequently been constrained by explanations based on externally visible characteristics such as form and ornamentation. To expand the interpretative scope, this paper explores human mobility and artifact transmission during and after the influx into South Bulgaria. To illustrate these points, we will examine the multiple aspects of mobility exhibited by styles, production techniques, and paste of pottery. This analysis will encompass two distinct categories of pottery: local and non-local (cord-impressed and red-slipped pottery), which are typologically identified in the Upper Thracian Plain and the Eastern Rhodope region.

17. A BONE DISC FROM VERBICIOARA (ROMANIA) AND ITS IMPORTANCE FOR THE LOWER DANUBE BRONZE AGE

Contribution format: Oral  
Contribution authors: Cristian-Eduard Stefan (“Vasile Pârvan” Institute of Archaeology, Romanian Academy)

The archaeological excavations at the Bronze Age key site from Verbicioara (Romania) were made in the 1950s by a team under the supervision of D. Berciu. That was the moment when the Verbicioara culture was discovered and defined as the main occurence for the Middle and Late Bronze Age in the southwest of Romania. Unfortunately, only a small part of the site inventory was published and today, still, there is much controversy regarding its stra-tigraphy and, by default, the general periodization of the Verbicioara culture. In this contribution a special object is presented, which raised our interest during the arrangement of the archaeological materials from Verbicioara, in order to process them for future publication. The piece represents a bone disc with clear analogies in another implement discovered at Beycesultan (Turkey), showing close connections between Western Anatolia and the Balkans. Besides the obvious proof of traveling people and/or ideas, the bone disc is also important for the abso-lute chronology of the Verbicioara site (and culture), since we don’t have any radiocarbon dates for it until now and the context for the object from Beycesultan was very well dated.

200. SIGNS OF MOBILITY OR THE “BALKAN TRACE” IN THE LISAKOVSK BURIAL GROUND OF THE BRONZE AGE, KAZAKHSTAN

Contribution format: Oral  
Contribution authors: Emma Usmanova (Saryarka Archaeological Institute Karaganda Buketov University; Margulan Archaeological Institute)

The cultures of the Carpathian-Danubian focal point participated in the formation of the patterns of the Andronovo culture at the beginning of the 2nd millennium BC. Such jewelry as a braid adornment (nakosnik) made of beads and bronze pendants, a gold “pendant” was found in th. Lisakovsk burial ground (Kazakhstan). An early analogue of the braid adornments appears on a clay figurine “Kličevačkog Idol” (IV-III millennium BC) from the Serbian Danube region. The headdress with a braid adornment is the result of the movement of design ideas arose as a result of the relationship of the Balkan-Carpathian with the Bronze Age cultures of the Kazakh steppes. The “Balkan image” is present in the “pendant”, which has a typological similarity with the pectoral pendant depicted on the clay female figurines from the Balkan culture. of the Bronze Age Gârla Mare. The style of the braid adorn-ments was adopted and reworked in accordance with the Andronovo tradition, while the “pendant” was most likely imported. It has no analogues among the Andronovo adornments. The ceramic product in the form of a dish with “ears” is part of burial inventory of th. Andronovo. A hypothesis was put forward that the dish is a model of a cart, which was made in the “scale of a hand” specifically for the funeral rite. In the complexes of the Bronze Age cultures of the Balkans and Carpathians there are miniature models of real carts. The interpretation dish as a model of a cart is based on the general stylistics of the image of the vehicle. It is could be a symbol of the path and mobility. The transmission of images of products between the cultures of the Balkans and the steppe cultures of the Bronze Age is the result of the mobility of people, ideas and things.

435. THE KARST REGION IN THE EARLY BRONZE AGE: FROM THE CETINA CULTURE TO THE RISE OF HILLFORTS

Contribution format: Oral  
Contribution authors: Federico Bernardini (Università Ca’ Foscari Venezia) – Elena Leghissa (ZRC SAZU, Institute of Archaeology)

The Karst region of Trieste, in north-eastern Italy, is rich in archaeological caves and protohistoric hillforts. However, the quality of recovered data remains uneven and insufficient to fully reconstruct the region’s cultural dynamics from the Late Copper Age to the Bronze Age. The latter period saw the rapid emergence of numerous permanent fortified settlements associated with the so-called Castellieri culture, which dramatically reshaped the landscape and left a lasting imprint still visible today. Their origins, often linked by scholars to the eastern Mediterranean, remain debated and not yet fully understood. This paper presents new archaeological data from two recently excavated sites: the Trmun hillfort in northern Istria, attributed to the end of the Early Bronze Age, and the Tina Jama cave in the Trieste Karst. At Tina Jama, archaeological layers primarily associated with the Cetina culture - whose most recent radiocarbon dates roughly coincide with the transition between the 3rd and 2nd millennium BC - are overlain by levels linked to the earliest phase of the Castellieri culture. These materials are comparable to those from the Trmun hillfort. These contexts provide a unique opportunity to examine patterns of technological and cultural change or continuity between pre-Castellieri evidence and the earliest hillforts. The findings not only refine our understanding of local archaeological sequences but also offer new insights into regional interactions and cultural dynamics during the Late Copper Age and Early Bronze Age.



2279. MOBILITY ALONG THE RIVERS IN THE BRONZE AGE BALKANS: A REASSESSMENT

Contribution format: Oral  
Contribution authors: Tobias Krapf (Swiss School of Archaeology in Greece)

The river valleys of the Balkans are often regarded as the primary axes of communication during the Bronze Age, with networks commonly mapped along these routes. However, to what extent does this assumption reflect prehistoric reality? Are site patterns biased by modern accessibility and routes and tend therefore to indicate similar axes of communication? Could alternative routes have played a more significant role than traditionally acknowledged? If so, how can their importance be evaluated—or, conversely, how can their relevance be systematically excluded? And by what means did this communication function? This paper critically reassesses the role of riverine mobility in the Southern and Southwestern Balkans, questioning whether ideas, innovations, and material goods travelled along the same routes. It further explores potential shifts in communication patterns over time, particularly during the 3rd and 2nd millennia BCE, but including comparisons with earlier and later periods. The study begins with an overview of prevailing research assumptions before addressing these key questions. Finally, it proposes a methodological framework for a more systematic and evidence-based approach to studying routes of mobility in the region.

1772. RULES OF ATTRACTION: INCREASING AND DECREASING MOBILITY AND INTERACTION ACROSS THE ADRIATIC BETWEEN THE MID-3RD AND THE 2ND MILLENNIA BC

Contribution format: Oral  
Contribution authors: Giulia Recchia (Sapienza University of Rome) – Francesco Iacono (University of Bologna)

Continentality, mountain range, valleys and rivers chiefly characterize the Balkan peninsula and shaped mobility and interactions; nonetheless maritime interfaces played a significant role in the inflows and outflows of individuals, raw materials, goods, ideas, technologies and in the development of cross-cultural social relationships and mobility. Since the Neolithic, the Adriatic Sea represented one of the main Balkan maritime interfaces. Its role was two-fold, as it channeled transmission but also represented a barrier, thus limiting the spread of tendencies and cultural patterns characterising neighbouring areas. From the mid-3rd millennium BC connective phenomena across the Adriatic dramatically increased, within a framework of mobility and interactions developing across the Mediterranean and Europe. Yet during the 2nd and early 1st millennia BC alternate phases of increase and decrease in Adriatic mobility and interactions as well as shifts in the directionality and intensity of contacts unfolded, while profound socio-cultural transformations were developing. By adopting a long-term diachronic perspective and considering new evidence offered by archaeological (both qualitative and quantitative), archaeometrical and biomolecular data we will discuss possible driving forces behind shifting in Adriatic connectivity and the impact these had on the communities involved in such processes.

102 LEGAL PROTECTION OF ARCHAEOLOGICAL HERITAGE IN TIMES OF CRISIS AND SOCIAL TRANSFORMATION

Session theme: 6. Intertwining archaeology, heritage, and museums  
Session format: Round table  
Session keywords: Heritage, Legislation , Climate Change, Wars and conflicts, Citizen science, Democratization of knowledge  
Session organisers: Hakon Glorstad (Community of Archaeological Legislation and Organisation) – Andris Kairiss (Community on the Illicit Trade in Cultural Material) – Francesca Benetti (Community of Public Archaeology) – Jean-Olivier Gransard-Desmond (Political Strategies Community) – John Carman (EAA Heritage Advisory Committee)  
Session speakers: Thomas Meier (Institut für Ur- und Frühgeschichte und Vorderasiatische Archäologie, University Heidelberg) – Cristina Gameiro (Centre for Archaeology. University of Lisbon) – Lenore Thompson (Innovation and Research, University of Derby) – Carenza Lewis (Lincoln School of Humanities and Heritage, University of Lincoln) – Harald Fredheim (Department of Archaeology, University of York) – Nils Anfinset (Universitetsmuseet, University of Bergen) – Marianne Mödlinger (Department of Chemistry and Industrial Chemistry, University of Genoa)

SESSION ABSTRACT

Climate change and warfare have recently created a whole new awareness of challenges and shortcomings in heritage management and legislation in Europe. Social developments have also increased the awareness of partially dated heritage legislation, where the development of citizen science is one of the opportunities archaeologists

can harness to face them. These macropolitical and geopolitical changes coincide with an explicit political interest in the archaeological heritage as means for creating a sense of belonging, a meaningful life for citizens, and an imperative of democratize knowledge through participation in knowledge production. A sense of belonging through engagement with the heritage can be understood as both a response to current crises and an unease with the traditional professionalization of heritage management to manage and distribute knowledge of the past.The aim of this round table session is to begin the process of creating specific policies and actions on key issues by the Association. Current crises and developments raise legal challenges that require principal and holistic thinking across national legislation and specific cases. To do this we plan to organise workshops and working groups on issues identified in this session based around approaches developed in the discussion. The discussion will be introduced by three carefully prepared and coordinated key notes on the ways current international and national legal instruments approach and interconnect the actual issues of. • Cultural heritage and climate change • Cultural heritage in conflicts and wars • Cultural heritage, citizen science and the democratization of knowledge By exploring these themes, we intend to cultivate a more holistic approach to heritage management that acknowledges its complexities and embraces collaboration across disciplines and communities and to develop appropriate regulation to be of benefit to archaeology and archaeologists, for promotion by the European Association of Archaeologists.

103 THE AMULETS, FROM THE OBJECTS TO THE BELIEFS

Session theme: 1. On artefacts and beyond  
Session format: Regular session  
Session keywords: The Role of Amulets in Healing Practices or in Identity and Status, Differentiated Uses and Meanings, Funerary Practices and Afterlife Beliefs, Symbols, Materials, and Shapes, Origins, Materials, and Cultural Meanings, Trade and Cultural Exchange Networks  
Session organisers: Nova Barrero Martín (National Museum of Roman Art) – Alexandra Vieira (Polytechnic Institute of Bragança)  
Session discussant: Ana Cristina Hamat (Museum of National History and Archaeology Constanta)

SESSION ABSTRACT

The study of amulets within disciplines like archaeology and anthropology provides the opportunity to investigate the beliefs, religious practices, and cultural symbolism of both ancient and contemporary societies. Amulets are objects of profound significance in different cultures, reflecting the deeply rooted beliefs and traditions of the societies that create them. These objects often serve a dual purpose: they are intended to provide protection against supernatural forces, such as evil spirits or harmful energies, and also to give their wearers a sense of security as well as to attract luck, good fortune and prosperity. A key issue to address in this session is the clear definition of amulets, as it is crucial to establish criteria for their identification before proceeding with their analysis or hypothesizing about their function. The discovery of amulets at archaeological sites provides crucial insights into the worldview and cultural frameworks of the societies that produced them. By analyzing them, we can uncover distinct patterns related to religious beliefs, healing rituals, and magical practices, revealing how these communities understood and interacted with the supernatural realm. The symbols and materials used in the creation of amulets play a crucial role in conveying their intended meanings and functions. Each symbol often has a specific cultural or spiritual significance. The choice of materials is equally important, as different substances are thought to have unique properties. The availability of these materials can also provide insights into trade networks and the distribution of resources within ancient societies. The geographical distribution of amulets can illuminate the intricate networks of cultural exchange that existed between different groups and societies.

CONTRIBUTION ABSTRACTS

24. EGYPTIAN FAIENCE AMULETS AMONG THE LATE SCYTHIANS AND SARMATIANS

Contribution format: Oral  
Contribution authors: Olena Dzneladze (Institute of Archaeology of the National Academy of Science of Ukraine) – Denys Sikoza (The regional inspectorate for the Protection of historical and cultural Sites, Kherson)

Egyptian faience figured plaques and pendants are the amulets, popular among the Late Scythians and Sarmatians. The manufacture of faience objects of the Hellenistic and Roman periods is traditionally associated with Naucratis, territories of Syria and Egypt. The hypothesis about glassmaking centers in the North Pontic Region, from where imitations of some types of these items could have been come, has not been confirmed by archaeological material. According to the recent research 57 figurative items made of Egyptian faience and imitations made of glass



have been found at the Late Scythian sites of the Lower Dnipro. The most number was found in the Late Scythian necropolis Chervony Mayak in women’s and children’s burials. These are 42 scarabs of different types, plaques with a crocodile, a lion, double cylinders, pendants-genitals, amphora-shaped pendants, as well as figured pendants with the images of the Egyptian gods Bes and Harpocrates. Single finds of Egyptian faience pendants come from some Late Scythian hill-forts. The peak of the use of Egyptian faience by the Late Scythians of Lower Dnipro area could be dated to the second half of 1st – mid-2nd century AD. Such amulets were also popular among the Sarmatians. 120 figured items made of Egyptian faience come from the Sarmatian burials of Ukraine: scarabs, lions, turtles, anthropomorphic pendants, amphora, fig and grape-shaped pendants, double cylinders, altar item, and several types of beads. They were found in 25 Sarmatian burials. All of them are dated to the second half of the 1st – early 2nd centuries AD and, like in the Late Scythian milieu, were mostly the female and infant attributes. It is possible to assume that the Late Scythians and Sarmatians believed in power of amulets for different aims: protection of damage, the evil eye, as well as attracting good luck, fortune and fertility.

38. TRANSLATIO MONETAE - FOREIGN COINS USED AS AMULETS AND GRAVE GOODS IN A GLOBAL CONTEXT

**Contribution format:** Oral  
**Contribution authors:** Philipp Schwinghammer (German Numismatic Society / Society of Thuringian Coins and Medals)

In this lecture, I would like to address the phenomenon of coins as amulets and talismans with regard to my global numismatic analysis of about 4 billion coin finds worldwide. In America, European coins, such as Old German and British coins, have been used as amulets and grave goods. We are also familiar with Chinese coins from Alaska and Australia, which had a more ritual character. A summary of so-called coin amulets and Charon’s obols will follow in order to underline the difficulty of identifying coins as amulets in an archaeological context. We are also aware of Roman coins that have been used as grave goods in the Barbaricum, as well as Venetian ducats, which migrated to Asia, especially India and China, where they were imitated and subsequently worn as religious tokens and amulets. At the end of the lecture, an attempt at . definition for coins in their secondary use as coin decoration, jewellery, amulet and grave goods should be developed.

94. TEXTS ON HAN BURIAL OBJECTS AND THE IMPLICATIONS

**Contribution format:** Oral  
**Contribution authors:** Eileen Hau-Ling Lam (The Education of Hong Kong)

Ancient Chinese burial objects, made of bronze, jade, lacquer, ceramic, or textile, frequently bear decorative motifs or pictorial images on the surface, while inscriptions or texts are less prevalent. Apart from the inscriptions on bronzes, texts or words on ancient ritual objects are brief and tend to be subordinate, or serve to provide information related to their manufacture. Interestingly, during the Eastern Han period (25–220 AD), inscriptions or texts occurred on a wider range of burial objects, appeared as separate motifs or were placed in a more important position on the objects. These text-bearing objects, ranging from jade, bronze, ceramic, wood, and textile materials, are commonly regarded as amulets or objects offering auspicious meanings or good wishes for the afterlife. This paper will examine the function and implications of these text-bearing objects. By studying the content and the way the texts are displayed on the burial objects, this paper will also discuss the relationship between texts, materials, and objects, while investigating their embedded potency and function in relation to afterlife beliefs in the mortuary context.

382. AMULETS IN LUSITANIA: MODEL AND DIFFUSION FROM AUGUSTA EMERITA

**Contribution format:** Oral  
**Contribution authors:** Nova Barrero Martín (National Museum of Roman Art) – Abel Morcillo León (Consejería de Educación/Junta de Extremadura)

The amulets combin the magical power of their material with symbolic forms. The have protective, apotropaic and beneficent functions. On occasion, these amulets become real pieces of jewelry. In the province of Listania, we can found the typical types in the Empire. Among the most notable sets are the bullae, made of very diverse materials, as well as phallus pendats, in the latter case not only for the neck, but also as earrings. Likewise, we must stand out the presence of reused coins as amulets. Buy moreover, we sey out the female figures, made on bone, produced in Augusta Emerita, whose exact functionality is still questioned and whose diffusion throughout the province of Lusitania shows once again that Augusta Emerita was a cultural dissemination center. Tha capital of the province allowed a quickly dissemination of the roman religius and cultural meanings a long the provincial territories. The findings of the amulets also seem to demonstrate this.

442. FROM DRINKING VESSELS TO AMULETS: THE PROTECTIVE POWER OF THE GORGONEION IN ANCIENT GREEK CULTURE

**Contribution format:** Oral  
**Contribution authors:** Iryna Chechulina (The Institute of Archaeology of the National Academy of Science of Ukraine)

In the ancient Greek world, magic and rituals played a crucial role in daily life. Almost every action was accompanied by specific rituals, including sacrifices and libations. Within the Greek pantheon, each god or goddess was responsible for a particular aspect of life. A distinct group of deities and symbols were associated with protection. This study focuses not on the deities themselves but on their symbolic representations, particularly those used as amulets—protective talismans crafted from various materials. One of the most intriguing apotropaic symbols is the Gorgoneion, the head of Medusa, which was widely believed to ward off evil. The Gorgoneion frequently appeared in architectural elements (such as temple pediments), clothing (as seen in vase iconography), and even drinking vessels. A particularly compelling example of this symbolism is found in kylikes—popular wine-drinking cups—where the Gorgoneion often adorned the interior bottom of the vessel. This placement suggests a dual function: protecting the drinker from harm and serving as a cautionary symbol, perhaps reminding them to drink responsibly. Even more intriguingly, archaeological material from Olbia Pontica reveals that kylix bottoms featuring the Gorgoneion were sometimes deliberately modified after the cup was broken. This raises an important question: were these cup fragments repurposed as amulets for continued protection, or did they serve another function? By analyzing these artifacts, we aim to explore the evolving role of the Gorgoneion beyond its original context, shedding light on the blurred boundaries between everyday objects and protective talismans in the ancient Greek world.

545. THE DOG IN THE ART AND BELIEFS OF THE EARLY IRON AGE CENTRAL CAUCASUS

**Contribution format:** Oral  
**Contribution authors:** Nadezhda Kotova (Institute of Archaeology Ukrainian Academy of Sciences) – Sergey Makhortykh (Institute of Archaeology Ukrainian Academy of Science)

The Early Iron Age Koban culture is located in the mountainous Central Caucasus. Its population was involved in active economic and cultural contacts with inhabitants of South Caucasus, Iran and Anatolia. The presence of numerous imports and imitations at the local archaeological sites indicates that the Central Caucasus can be considered as the northern outskirts of the Near East. Our paper sets out to explore the special significance of such animals as dogs in the Caucasian religious environment, based on the archaeological and ethnographic regional data. The dog images are among the most popular and widely exhibited in the art of the Koban culture. They are represented as volumetric sculptural figures and as graphic incised depictions on belt buckles, belts, axes, fibulae, foot rings and daggers. Sculptural representations of the Canines include full figures, protomes and single heads. The bronze figurines in the shape of dogs have a loop for hanging. Canines are also represented as decorative details on the tops of some Koban pins and axes. The protomes and heads of dogs are used to decorate dagger handles, cheekpieces, pins and pendants. Bronze dog statuettes are characterized by open mouths, prominent fangs and small pointed ears. They were a part of unique amulet complexes that served as necklaces, which were representative accessories of the costume. It is notable that dog figurines were discovered in female burials as well as leg rings with the incised depictions of dog’s images. Although these objects belonged to one person, most likely a priest, their magical protection probably extended to the benefit of the entire community. The dog’s graphic depictions on the bronze belts, buckles, axes, and daggers were typical for male burials.

682. AMULETS FOR THE UNDERWORLD. THE CASE OF AMULETS FINDINGS FROM THE ROMAN NECROPOLISES IN DACIA AND MOESIA INFERIOR/SCHYTHIA MINOR

**Contribution format:** Oral  
**Contribution authors:** Stefan Georgescu – Ana Hamat (Museum of National History and Archaeology Constanta)

In the Roman era, amulets were used to protect a wide range of individuals, coming from every economic class of society. Some of these objects, even accompanied their master in to the Underworld. For these presentation, we will use and present, some particular inhumation graves discovered in Drobeta and Apulum from the roman province of Dacia along with Tomis and Callatis from Moesia Inferior/Schythia Minor, and dated during the 1st-4th centuries AD. Among the amulets discovered here, we will present especially the items of jewellery like medallions, rings, earring. along with simple gems and cameos. By discussing the functionality of this objects, we will try analyse the roll of these particular amulets in the life of the individuals and also the connotations related with the funerary inventory. Most of these amulets are part from exquisite jewellery made from precious metals, and others are made from particular materials like jet or mothers of pearls. Between amulet wearers we have mostly women and children and more rarely men. They have a wide range of protection from physical and mental illness to the evil eye, bad luck and they often grant to the owner a long and happy life with good health,



love, and many riches.

691. THE LANGUAGE OF JEWELS. THE VALUE OF APPEARANCE THROUGH SIX ENGRAVED GEMS FROM A ROMAN BATH DRAIN IN ARUCCI (SPAIN)

Contribution format: Oral  
Contribution authors: Isabel Aguilar Corona (University of Huelva)

Throughout history, human beings have tended to enhance their own physical appearance and to adapt to the aesthetic canons established in each era, responding more to social demands than to mere personal requirements. In this context, jewellery has served as an instrument through which individuals and collectives have manifested their own identity. Various groups—including political elites, armies, religious orders and women—have used materials, shapes, colours and symbolic representations to show their links with particular beliefs or social categories. The abundance of jewellery, hair needles and other adornments found in bath contexts underlines the importance of these spaces as social display settings. The diversity of items, ranging from gold earrings and precious stones to imitation beads made from vitreous paste, demonstrates that the use of adornment and social display transcended differences in social status. This paper presents an unpublished set of six engraved gems recovered in the archaeological excavations of the bath building of the Roman city of Arucci (Aroche, Huelva, Spain). These pieces, extracted from the final area of the drainage channel of the water from the natatio and the pool, date from the 1st to the 3rd century AD and reveal the types of stone and glyphic motifs characteristic of the period. Furthermore, the discovery of these elements in a well-defined archaeological context provides valuable functional and social information, offering a contrasting perspective to those materials which, coming from private collections, have no provenance.

1502. CONTAINERS FOR AMULETS FROM THE POLISH LANDS – POSSIBILITIES OF ANALYZING EARLY MEDIEVAL ARTIFACTS

Contribution format: Oral  
Contribution authors: Joanna Wawrzeniuk (Institute of Archaeology, Cardinal Stefan Wyszyński University in Warsaw)

During excavations at early medieval sites, kaptorgas and small woolen pouches were often found, which were frequently interpreted as containers for amulets. Kaptorgas are small rectangular or trapezoidal boxes made of silver, bronze, or tin sheets and richly ornamented. The name “kaptorga” originates from Turkish and originally referred to reliquaries. However, these types of containers also contained objects related to traditional, pre-Christian beliefs of the inhabitants of the Polish lands. Among the containers found were remnants of fabrics, fur, beeswax, threads, lumps of clay, piece of animal bone and seeds of various plants. The earliest kaptorgas finds were recorded in the Czech lands in the graves of local princely family, while finds in the Polish lands were concentrated at sites along the Oder and Warta rivers. These items were usually part of hoards, burial equipment, or offerings for the deceased. In contrast, relatively few pouches have been found at settlement sites. What role did these items play in early medieval communities? Who could have been their owners? What might their contents have symbolized, and in what religious contexts were they used?

1867. CHARMED, I AM SURE: AMULETS FROM ROMAN PERIOD SLOVENIA

Contribution format: Oral  
Contribution authors: Ana Kovacic (Independent | Univerza na Primorskem) – Mija Topličanec (Institute for the Protection of Cultural Heritage of Slovenia) – Kaja Stemberger Flegar (PJP d.o.o.)

In recent years, amulets have been gaining popularity as a topic to study in Slovenian Roman archaeology. The focus has been predominantly on items associated with children, such as bullae, lunulae, and to some degree crepundia, especially in funerary contexts, but systematic studies taking into consideration chronological and spatial distributions are still missing. Due to the proximity of the amber route and its relevance since prehistory, significant attention has been dedicated to amber objects as well. The aim of this paper is to examine amulets found in the territory of modern Slovenia from a typological, theoretical, and comparative perspective, including issues such as what objects could be interpreted as amulets, where they might have come from, and how they may be interpreted in different contexts. We will also address how amulets have been used in local settings, especially if this differs from the patterns determined for other parts of the Roman Empire. The ultimate goal of the paper is to go beyond individual objects and address the group as a whole.

2319. HARE AND DOG AMULETS FROM THE HUNGARIAN BRONZE AGE SITE OF SZÁZHALOMBATTA-FÖLDVÁR

Contribution format: Oral  
Contribution authors: Zsuzsanna Tóth (Hungarian National Museum, Archaeological Department)

Százhalombatta-Földvár is a fortified tell settlement alongside the Danube lying on the western bank of the river on a natural promontory of ca 160m high. First archaeological investigations at the site begun at 1952, excavations at 1963 shedding light on complex stratigraphy suggesting a long occupation from the Early Bronze Age Nagyrév culture until the end of the Middle Bronze Age Koszider period. From 1999 until today an international research group conducts excavations with finest techniques and evaluation of the finds. Personal ornaments, such as beads and pendants represent a remarkable group among the finds. Brown hare (*Lepus europaeus*) and dog (*Canis familiaris*) metapodia were perforated dorso-ventrally at or above the distal epiphysi. for suspension and were used as pendants/amulets. These objects are common during the Middle Bronze Age levels often found in association with each other suggesting a metaphorical pairing of the prey and its hunter. Such amulets were found at other geographical locations and in several different time periods suggesting a special meaning.

2323. TRANSMISSION OF AMULETIC POWER: THE MAGICAL PROPERTIES OF ANCIENT GEMS REUSED AS SEALS IN MEDIEVAL BRITAIN

Contribution format: Oral  
Contribution authors: Adél Ternovác (University of Reading, Department of Classics)

This paper explores the transmission of amuletic beliefs and the medico-magical properties of ancient gems in the Middle Ages, focusing on medieval Britain. Gemstones depicting mythical and everyday-life scenes or magical motifs played a significant role in ancient cultures from the Bronze Age onwards. In Britain, particularly from the mid-12th to the 14th centuries, surviving gems were often reset in metal mounts (matrices)—mainly signet rings or pendants—to serve as seals. Drawing on a corpus of two object types—medieval metal mounts set with gems and wax seal impressions made using such matrices—this research takes two approaches. First, it examines items where the legend surrounding the gem suggests an amuletic function. While metal seal mounts were often inscribed with owners’ names, some bore magical invocations, mottoes for good fortune, or brief descriptions of the stone’s therapeutic properties. Second, the study explores medieval lapidaries—texts detailing the magical properties of specific stones and motifs engraved upon them. Ancient gem lore was transmitted to the Arab world and later to Christian world, surviving in numerous manuscripts.. Amuletic beliefs in engraved gems persisted since antiquity, but medieval reinterpretations often transformed or redefined their meanings. While valued for their ancient origins, their magical powers were attributed to natural forces bestowed by God.

2338. BEYOND MAN’S BEST FRIEND. DOG TEETH AND BONES AS AMULETS IN EVERYDAY AND FUNERARY CONTEXTS

Contribution format: Oral  
Contribution authors: Borut Toskan – Brina Škvor Jernejčič (Research Centre SAZU, Institute of Archaeology) – Nives Ogrinc – Doris Potočnik (Jožef Stefan Institute, Biogeochemistry group) – Jessica Peto (University of Exeter, Department of Archaeology and History) – Alice Dobinson (University of Oxford) – Petra Vojaković (Department of Archaeology, Faculty of Arts, University of Ljubljana)

In the south-eastern Alpine region, the remains of dogs found in Late Bronze Age and Early Iron Age graves and other cemetery structures bear witness to the important role this animal played in the mythological sphere of the time. Apart from being the remains of sacrificed pets, the canine teeth/bones were possibly attributed special powers to protect the soul of the deceased in the afterlife. The choice of the skeletal element deposited, the place of deposition, the biological characteristics of the selected animal (age, sex, possible pathologies, paleodiet based on stable isotope results, insights provided by aDNA analyzes) and the traces of human activity (i.e. chop and cut marks) should provide information on the magical practices and/or religious beliefs associated with it. These results are confronted with canine remains from a selection of settlement contexts such as postholes or foundations of certain buildings. It is argued that at least some of the said dog remains may represent amulets contained within the foundation deposits.

2482. DYNAMIC SYMBOLS, STRATEGIC USES - VIKING AGE SCANDINAVIAN AMULETS

Contribution format: Oral  
Contribution authors: Bo Jensen (Indepedent researcher)

During the Scandinavian Viking Age (~CE 750-1100), we see a distinct tradition of manufacture and use of



miniature objects, mostly metal, mostly worn as pendants. This tradition largely disappeared with the end of the period, as Scandinavia becomes integrated in mainstream, European Christian culture. During the Viking Age, Scandinavian communities expanded overseas, often in violent ways, ranging as far as Greenland and North America, the Black Sea and the Caspian Sea. This brought them into far more contact with other cultures than ever before. This talk draws on my 2010 catalogue of 1350 Viking Age amulets, supplemented with some more recent finds, and investigates how people adopted, adapted and reinterpreted foreign and local types, with some attention to strategic use under specific circumstances. In particular, a case of likely castration highlights how an unusual crisis provoked an unusual response, and how this reflects a series of specific understandings of bodies and selfhood. Drawing on this, and on a couple of imported types (miniature snakes, combs), I argue that amulets are dynamic, and that their meaning and use changes through time and space.

**1340. THE BURIALS OF THE CHURCH OF SÃO JOÃO DA FOZ: PILGRIMAGE AND FUNERARY SYMBOLISM**

**Contribution format:** Poster  
**Contribution authors:** Alexandra Vieira (Instituto Politécnico de Bragança (IPB))

Inside the Fort of São João Baptista, the remains of a medieval chapel from the 11th/12th century stand out, as well as elements of the church of São João da Foz, the first Renaissance church in the Portuguese Empire, built in the 16th century and later incorporated into the construction of the Fort. This archaeological site is located at the mouth of the Douro River, in Oporto. The necropolis associated with the archaeological site shows a significant diachrony, with remains from different historical periods. The excavations revealed the presence of graves, some of which contained artefacts such as medals, beads, rosaries, pins, rings, coins, earrings, suggesting the practice of funerary rituals linked to spiritual and apotropaic beliefs. Among the materials found in the necropolis, scallops shells and jet figurines stand out, elements strongly associated with the Camino de Santiago. The scallop shell, an emblematic symbol of the pilgrimage to Compostela since the 11th century, was used by pilgrims as a container for water and food, as well as a sign of identification and devotion. The presence of these shells in funerary contexts suggests the presence of Pilgrims. Jet, a material widely used in the production of amulets and devotional objects, has a triple aspect - religious, superstitious and ornamental - which reinforces its importance in medieval and modern material culture. The symbolism of these elements is closely linked to protection and spiritual renewal. The scallop, associated with water, represents purification and inner transformation, while the jet, historically considered a protective material against evil, was widely traded in Santiago de Compostela and used as an amulet by pilgrims. These archaeological findings allow us to reflect on the importance of the site in the network of Jacobean routes and to highlight the cultural and religious impact of pilgrimages on the Iberian Peninsula.

**1429. AMULETS FROM THE ROMAN MILITARY CAMP OF BURNUM**

**Contribution format:** Poster  
**Contribution authors:** Ivana Jadric-Kucan (—)

To ensure their protection and achieve the best possible success on the battlefield, Roman soldiers often turned to various gods. In addition to invoking these deities in their prayers, they believed that jewelry featuring the images of these gods would provide even greater protection and bring prosperity, success, and happiness in all aspects of their lives. Therefore, soldiers frequently incorporated images of various deities into the gems adorning their rings, giving these pieces not only a religious significance but also the function of amulets. At the site of Burnum, several gems have been preserved, including those depicting Hercules, Minerva, Isis with little Horus, Tyche-Fortuna Panthea, and Apollo. Other decorative objects from this military camp also attest to their magical powers. Notably, a bead featuring the likeness of Medusa/Gorgon, which was believed to repel evil, stands out, as does a pendant depicting Harpocrates, along with a bulla that features the image of a frog. Melon-shaped beads made of Egyptian faience, simpler pendants made from readily available organic materials as shells also provided strong apotropaic power and protection for the wearer. This paper analyzes the amulets that were part of the personal jewelry of Roman soldiers, highlighting the significant apotropaic function these objects served, even within military sites. These amulets were discovered during systematic archaeological research at Burnum, which began in 2003. Most of the findings date to the first half of the 1st century, concluding at the early phase of Claudius’ reign, based on the archaeological material uncovered in the area of the amphitheater and training ground (campus).

**2302. AMULETS DEFINING BELIEFS WITHIN THE LATE COPPER AGE VUČEDOL CULTURE**

**Contribution format:** Poster  
**Contribution authors:** Mirna Šuljug – Petra Nikolić – Mirela Hutinec (Vučedol Culture Museum)

Beliefs related to certain prehistoric cults are relatively well-known within the framework of the Vučedol Culture of the late Copper Age, but less is known about the manner in which ritual activities were performed. Most beliefs

for which we have material evidence trace their origins to Neolithic period and are incorporated into the Vučedol concept of living as the first real Indo-European culture. During the systematic archaeological research of the eponymous site Vučedol in Vukovar, Croatia, at the position of Corfield Streim, a large number of amulets were found. Usually they represent the parts of ceramic vessels, the so-called Vučedol Terrina, i.e. biconical bowls that bear different symbols on the biconite in which the symbols of the Sun and the constellation Orion (Winter Sun) stand out in particular. The symbols are usually consisted of multiple circles with a cross symbol in the center, or small circular dots representing the stars of the constallations. The symbols are always decorated with white and rarely red incrustation. Besides these types of amulets, there are also some of the miniature ceramic findings which can be linked to a similar function, such as ceramic models of the stone axe and ceramic model of the consecrative horns. Two findings of small stone pendants are particularly interesting, and there is a possibility they also served as amulets due to the prominent fact that within the framework of the Vučedol Culture there is a large lack of jewelry finds.

**2349. GLASS EYE-BEADS: OCCURRENCE AND SIGNIFICANCE OF IDIOSYNCRATIC GLASS JEWELLERY IN MYCENAEAN CONTEXT**

**Contribution format:** Poster  
**Contribution authors:** Kalliopi Nikita (Ephorate of Antiquities of East Attica, Hellenic Ministry of Culture, Greece)

The current work presents and discusses the occurrence of glass eye-beads in burial contexts of Mycenaean Greece. Special emphasis is placed on examples that were found in cemetery sites in the Argolid, Peloponnese. First, an overview of the principal types of this distinctive piece of glass jewellery is given on the basis of the techniques employed in its manufacture. Their idiosyncratic morphology in conjunction with their rarity and uneven geographical and chronological distribution in the Mycenaean World demonstrates that glass eye-beads are not included amongst the typical jewellery produced by the thriving Mycenaean glass industry. Given that glass eye-beads are distinctive products of alien glass industries, their provenance is traced through the external relations network of the Peloponnese with the Eastern Mediterranean during the Late Bronze Age. A comparative study with examples from contemporaneous Mycenaean sites outside the Peloponnese, namely Rhodes and Cyprus, will facilitate a more comprehensive discussion. Ultimately, taking into consideration that Late Bronze Age glass eye-beads are principally found in burials, which are mostly associated with luxuries and exotica, the paper aims to interpret their idiosyncrasy in relation to their burial deposition, their possible symbolic attributes and social status of the dead within the context of Mycenaean funerary practices and beliefs.

**104 ANIMAL DIET, REPRODUCTION, MOBILITY, AND HEALTH: INSIGHTS FROM ISOTOPE RATIO AND BIOMARKER ANALYSIS**

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Regular session  
**Session keywords:** animal management strategies, isotope ratios, biomarkers, diet, mobility, reproduction  
**Session organisers:** Magdalena Blanz (Austrian Archaeological Institute, Austrian Academy of Science | Vienna Institute for Archaeological Science, University of Vienna) – Celia Díez-Canseco (Bioarchéologie, Interactions Sociétés environnements - UMR 7209, CNRS/ MNHN Paris) – Adeline Vautrin (Università Ca’ Foscari Venezia)

**SESSION ABSTRACT**

The study of animal husbandry has evolved significantly in the last decades, revealing increasingly detailed information on the complex relationships between humans and their domesticated animals. Advancements in analytical techniques and mass spectrometry have increased the accessibility and accuracy of isotopic analyses, and a growing body of research is showing the potential of biomarkers to study past animal biographies. This session will focus on how isotope ratio analyses, trace element ratio analyses, and studies of biomarkers in animal remains (bones, teeth, calculus, fur, leather, wool....) can reveal details about the diet, reproduction, mobility, or health conditions of domesticates, and provide insights into the human management of livestock worldwide since the onset of the Holocene. This includes isotope ratio analyses of carbon, nitrogen, sulphur, oxygen, hydrogen, strontium and zinc among others, and studies of biomarkers, such as polyphenols in bone, alkyl pyrroles in tooth calculus and cortisol in teeth. Together, these methods contribute to a more nuanced understanding of the complexities inherent in past human-animal interactions. This session encourages studies integrating these proxies to investigate animal domestication, husbandry systems, or management strategies in historical or prehistoric times. Presentations of work on method development, including the study of modern materials and model organisms, the creation of isoscapes, and discussions of pitfalls and cautionary tales are particularly welcome.



1715. ASSESSING CAT-HUMAN INTERACTIONS AT LATE ROMAN-EARLY BYZANTINE SAGALASSOS, TURKEY USING CARBON ( $\Delta^{13}\text{C}$ ), NITROGEN ( $\Delta^{15}\text{N}$ ), AND NON-EXCHANGEABLE HYDROGEN ( $\Delta^2\text{H}$ ) VALUES

**Contribution format:** Oral  
**Contribution authors:** Gene Shev (University of Rome Tor Vergata, Department of Biology) – Bea De Cupere (Royal Belgian Institute of Natural Sciences) – Anastasia Brozou (University of Rome Tor Vergata, Department of Biology) – Benjamin Fuller (University of Bologna, Department of Chemistry “Giacomo Ciamician”) – Marcello Mannino (Aarhus University, Department of Archaeology and Heritage Studies, Højbjerg, Denmark) – Wim Van Neer (Royal Belgian Institute of Natural Sciences) – Steven Bouillon (Department of Earth and Environmental Sciences, KU Leuven) – Claudio Ottoni (University of Rome Tor Vergata, Department of Biology)

Bone collagen carbon ( $\delta^{13}\text{C}$ ), nitrogen ( $\delta^{15}\text{N}$ ) and non-exchangeable hydrogen ( $\delta^2\text{H}$ ) values of humans, domestic cats (*Felis catus*), and other animals, were analysed from Late Roman – Early Byzantine (c. AD 350 –700) contexts at Sagalassos in Turkey. Analysed specimens include domesticated animals such as dogs, pigs, sheep, goats, cattle, chickens and geese, a selection of wild taxa, and small animals that likely served as prey for cats.  $\delta^2\text{H}$  values, a sparsely utilized isotopic proxy in archaeological research, provide extra information relating to diet, imbibed water sources, and trophic position to help discriminate the isotopic niches of different species. As cats are hyper-carnivores and non-obligate drinkers, their  $\delta^2\text{H}$  values are likely mainly dictated by their diets, which is evident in their relatively high values compared to most other species. Bayesian dietary mixing modelling using all three isotopic proxies was conducted on 16 individual cats to estimate how much of their dietary protein was derived from domestic animals, fish, or hunted small prey. Model results indicate that on average cats consumed mostly domesticated animal meats ( $\sim 40 \pm 20\%$ ) provisioned by humans, but supplemented their diets by hunting small commensal and wild prey. Interestingly, the  $\delta^{13}\text{C}$ ,  $\delta^{15}\text{N}$  and  $\delta^2\text{H}$  isotopic niche spaces of humans overlap the most with cats (92.2%,  $\alpha = 0.95$ ) compared to any other animal including domestic dogs, suggesting especially intertwined cat-human relationships in western Anatolia between the 4th – 7th centuries AD.

443. ANIMAL HUSBANDRY PRACTICES AT THE BEGINNING OF THE NEOLITHIC: STABLE ISOTOPE RATIO INSIGHTS FROM SOUTHEAST EUROPE AND ANATOLIA

**Contribution format:** Oral  
**Contribution authors:** Magdalena Blanz (Austrian Archaeological Institute, Austrian Academy of Science | Vienna Institute for Archaeological Science, University of Vienna) – Günther Grabner (Vienna Institute for Archaeological Science, University of Vienna) – Danica Grujić (Institute of Archaeology, Belgrade) – Alfred Galik – Barbara Horejs (Austrian Archaeological Institute, Austrian Academy of Science)

When Neolithic farming communities spread from the Fertile Crescent via Anatolia into Southeast Europe, they introduced their livestock to a variety of new environments. For sheep and goats, in particular, these environments differed significantly from the generally drier environments in which they were originally domesticated. Farmers therefore had to adapt livestock management practices such as housing, transhumant herding, watering and feeding of their stock accordingly, while likely also being influenced in their decisions by cultural factors. Stable isotope ratio analyses of animal remains offer an opportunity to study dietary habits of domestic livestock, including winter-foddering, forest-grazing, seaweed-eating and the feeding of pigs with human food waste, faeces, or fertilised crops. In this presentation, stable carbon, nitrogen and oxygen isotope ratio results ( $\delta^{13}\text{C}$ ,  $\delta^{15}\text{N}$  and  $\delta^{18}\text{O}$ ) from bones and teeth of domesticated and wild animals from Neolithic phases at Çukuriçi Höyük, Turkey, as well as bone collagen results from the Early Neolithic in Svinjarička Čuka, Serbia (Starčevo culture) will be presented. These results will be set into the larger context of stable isotope ratios of Early Neolithic animals at other pioneer sites in Southeast Europe and Anatolia, including the Starčevo sites Alsónyék (Hungary) and Măgura - Boldul lui Moș Ivčnus (Romania), and the sites of Halai (Greece), Zemunica (Croatia) and Uğurlu (Turkey).

409. METALLURGY, ENVIRONMENTAL CONTAMINATION, AND ARCHAEOLOGY: INSIGHTS FROM ANIMAL TEETH FROM MORIŠ SETTLEMENTS

**Contribution format:** Oral  
**Contribution authors:** Iride Tomazic (University of Michigan)

Environmental pollution and contamination are issues readily examined in numerous sciences. However, despite being in the ideal position to discuss these issues and their consequences, archaeology has hesitated to discuss the topic in detail due to diagenetic alterations of the biological material. This paper presents the pilot study done

between 2022-2023 of my ongoing dissertation project, “Dangerous Technologies”. The pilot study aims to show how archaeology can contribute to questions of environmental pollution and contamination debate by employing a rigorous sampling strategy, laboratory procedures, and using complementary analytical techniques such as ICP-MS and LA-ICP-MS. In this research, I use teeth from three animal species retrieved from the Bronze Age archaeological sites of Klárafalva Hajdova (2300-1500 BC) and Kiszombor Új-Élet (2700 -1950 BC), located in the Southern Carpathian basin. The teeth exhibited differences between various regions, as well as variations in inter-animal and intra-animal trace and rare earth elements (REE) abundances. The results speak about the importance of sampling strategy, which reflects various levels of animal exposure to these elements and possibly inciting metallurgical activity within and around the settlement.

1785. EXPANDING THE USE OF STRONTIUM: THE POTENTIAL OF STABLE STRONTIUM ISOTOPES FOR UNDERSTANDING ANIMAL HUSBANDRY

**Contribution format:** Oral  
**Contribution authors:** Hannah James – Tessi Loeffelmann – Jacob Griffith – Ben Gruwier (Vrije Universiteit Brussel) – Tamara Leskovar – Matija Črešnar (University of Ljubljana) – Christophe Snoeck (Vrije Universiteit Brussel)

Diet is an important aspect of animal husbandry. Strontium, which is incorporated into body tissues through dietary intake, has the potential to provide insights into both the geographic origin of consumed foods and the specific types of foods ingested. Radiogenic strontium ( $^{87}\text{Sr}/^{86}\text{Sr}$ ) is widely used to understand mobility, with the creation of strontium baselines expanding our ability to identify local and non-local individuals, and to track mobility around a landscape (such as transhumance patterns). Stable strontium (the comparison of  $^{86}\text{Sr}$  and  $^{88}\text{Sr}$ , expressed as  $\delta^{88}\text{Sr}$ ) is a new proxy, measurable in tooth enamel, which shows potential for understanding diet. Terrestrial, and marine or coastal inputs to diet, salt consumption, or changes in regional food sources are reflected in  $\delta^{88}\text{Sr}$ , as well as biological functions such as breastfeeding, weaning, and potentially growth rate. The simultaneous measurement of both these strontium ratios ( $^{87}\text{Sr}/^{86}\text{Sr}$  and  $\delta^{88}\text{Sr}$ ) alongside strontium concentration may allow for a more complete picture of animal ecology and husbandry practices. This talk will present bulk and sequential measurements of  $^{87}\text{Sr}/^{86}\text{Sr}$  and  $\delta^{88}\text{Sr}$  on cattle, sheep, horse, and pigs from modern and archaeological contexts, including 16-18th century Belgium and Bronze Age Slovenia. The analysis of modern samples of known provenance and life histories allows for an understanding of how these two isotope ratios vary according to animal age, location, or diet, allowing for the application to archaeological samples to provide more insights.

1956. EXPLORING DOMESTIC ANIMAL MOBILITY IN BRONZE AGE CAMBRIDGESHIRE THROUGH STRONTIUM ISOTOPE ANALYSIS

**Contribution format:** Oral  
**Contribution authors:** Bryony Rogers (School of Earth Sciences, University of Bristol) – Celia Díez-Canseco (BioArch, UMR 7209, CNRS /MNHN Paris) – Jamie Lewis (School of Earth Sciences, University of Bristol) – Marie Balasse (BioArch, UMR 7209, CNRS /MNHN Paris) – Joanna Bruck (School of Archaeology, University College Dublin) – Tim Elliott (School of Earth Sciences, University of Bristol)

Excavations at the two Bronze Age sites of Clay Farm (Oxford Archaeology 2010-2011) and AstraZeneca (Cambridge Archaeological Unit 2007-2016), located to south of the city of Cambridge, produced considerable domestic animal remains. The sites, within 1km of each other and separated today by a train line, are thought to be broadly contemporary with both domestic areas and a large multi-part enclosure within the landscape. Here we present incremental  $^{87}\text{Sr}/^{86}\text{Sr}$  data from animals deposited across the sites, combined with other isotopic data (e.g.  $\delta^{18}\text{O}$ , and  $\delta^{34}\text{S}$ ) to explore variation in the animal management practices through mobility both within and between the two sites. Initial analysis has identified small, but statistically significant, differences between the ‘local’ strontium isotope ratios found in the Clay Farm animals compared to the AstraZeneca animals. Both groups of which are within the expected range of local bioavailable strontium. Integrating other isotope system such as oxygen and sulphur, with the  $^{87}\text{Sr}/^{86}\text{Sr}$  data can allow for more detailed interpretations to be drawn even in areas where there is limited variation in the bioavailable strontium, such as Cambridgeshire and, more widely, southeastern Britain.

1996. INVESTIGATING ANIMAL HERDING AND LAND USE USING MULTI-ISOTOPE ANALYSES OF FAUNAL REMAINS FROM GIRD-I BEGUM (IRAQI KURDISTAN)

**Contribution format:** Oral  
**Contribution authors:** Jana Eger – Corina Knipper (Curt-Engelhorn-Centre Archaeometry) – Reinhard Bernbeck – Susan Pollock (Free University of Berlin)

Multi-isotope analyses were conducted on faunal remains from renewed excavations at the site of Gird-i Begum



(late 6th through mid-4th mill. BCE/early 3rd mill. BCE), located in the southeastern part of the Shahrizor Plain (Iraqi Kurdistan). The preservation of the animal bones is generally poor and sample sizes are small. However, the abundance of land snails of the edible variant *Helix salomonica* within the collected data is remarkable, similar to a number of Neolithic sites in the Zagros where mollusks were a frequent component of the archaeological material. Mammal remains of the assemblage are dominated by caprines. Central to the study are 15 caprine teeth, five cattle, and one modern sheep. Oxygen and carbon isotope compositions are investigated through sequentially sampled tooth enamel. Strontium isotope ratios of the same animals are determined to examine mobility or non-local origins. These analyses aim to identify patterns of mobility and grazing practices, such as seasonal herd movements or the exploitation of landscape microvariability with ecologically different conditions. We are interested in the question of how past communities organized animal husbandry, herd reproduction and used their zootechnical knowledge to navigate the potential challenges of maintaining and caring for a herd. To characterize local biologically available strontium, additional samples were analyzed, including pig and deer teeth as well as shells of land snails and freshwater mussels from the site. By comparing the results with available data from other sites in the region of the Zagros mountains, they are situated within the broader context of regional herding and land use patterns.

1967. PASTORAL PRACTICES AND MOBILITIES IN THE KURA VALLEY DURING THE BRONZE AGE IN GEORGIA

**Contribution format:** Oral  
**Contribution authors:** Adeline Vautrin (Università Ca’ Foscari, Venezia | BioArch UMR 7209, Muséum national d’Histoire naturelle, CNRS, Paris) – Rémi Berthon (BioArch UMR 7209, Muséum national d’Histoire naturelle, CNRS, Paris) – Elena Rova (Università Ca’ Foscari, Venezia)

The breeding of domestic ruminants was a major component of the past economy of agro-pastoral societies in the southern Caucasus. In central Georgia, the Kura Valley (600-700 m asl), characterised by a continental climate, occupies an intermediate position between the Greater Caucasus to the north and the Lesser Caucasus to the south. Numerous archaeological settlements have been documented there since the Chalcolithic and during the Bronze Age, but little is known about the pastoral practices of these agro-pastoral societies. This study will present the results obtained from three archaeological sites dating from the Early Bronze Age and the Late Bronze Age: Natsargora, Aradetis Orgora and its cemetery Doghlauri. “Classical” archaeozoological analyses have been carried out as well as carbonate isotope analyses of the teeth ( $\delta^{18}\text{O}$  and  $\delta^{13}\text{C}$ ) of cattle, sheep and goats, to compare pastoral strategies during the Bronze Age in the Kura Valley. The modalities and evolution of zootechnical practices (type of husbandry, products consumed/exploited, fodder, control of birthing seasons) and pastoral mobility (horizontal mobility, vertical mobility or absence of mobility) will be examined in order to characterise the environments exploited by the agro-pastoral societies of the southern Caucasus.

230. EXTENDED CALVING SEASON IN MIDDLE BRONZE AGE BRITAIN? EVIDENCE FROM STABLE CARBON AND OXYGEN ISOTOPE ANALYSES OF CATTLE TEETH

**Contribution format:** Oral  
**Contribution authors:** Celia Díez-Canseco – Marie Balasse (BioArch - UMR 7209, CNRS/ MNHN Paris) – Kate Kanne – Floor Huisman (School of Archaeology, University College Dublin) – Denis Fiorillo (BioArch - UMR 7209, CNRS/ MNHN Paris) – Joanna Bruck (School of Archaeology, University College Dublin)

Year-round calving means ensuring milk availability throughout the year. Year-round mating, and the resulting out-of-season calving, is a product of domestication and husbandry. Historical aurochs, as well as feral herds of domestic cattle, have seasonally constrained birthing periods, which typically coincide with the onset of the spring and the peak availability of food resources. Extending the birthing period requires significant technical effort, including ensuring a proper care and a good nutritional plane to support reproduction and lactation during less optimal times of the year. Previous studies have shown that extending the calving season would not have been easily achieved by the first farming populations in Europe, possibly constrained by environmental factors. When year-round calving first developed is still unknown, but it may have involved improvements in husbandry practices, such as sheltering and foddering. In this study, we explore calving patterns in the Middle Bronze Age sites of Clay Farm and AstraZeneca (Cambridgeshire, UK), where zooarchaeological evidence suggests that cattle played a predominant economic role and that dairy production was likely present. Sequential stable carbon and oxygen isotope analyses were conducted on tooth enamel to estimate the extent of the birthing season and infer cattle’s diet. Feeding strategies on a seasonal scale are investigated as a key parameter to maintain cattle fertility throughout the year. The combined analysis of second and third molars allows to monitor the seasonal rhythms of husbandry on a pluriannual scale, while the comparability of both records to infer birth seasonality is also assessed. Results from this study suggest that some husbandry efforts were made to extend calving period, although births did not occur all year-round. This study provides new insights into the husbandry

strategies developed by these communities, their organization of labor, and their patterns of milk production.

971. COMPARING NEOLITHIC AND CHALCOLITHIC CAPRINE HUSBANDRY THROUGH DENTAL ENAMEL ISOTOPE ANALYSES AT EL PORTALÓN DE CUEVA MAYOR (ATAPUERCA, SPAIN)

**Contribution format:** Oral  
**Contribution authors:** Juan Antonio Antolinos-Díaz – Amalia Pérez-Romero (Laboratorio de Evolución Humana, Universidad de Burgos) – Cristina Valdiosera (Laboratorio de Evolución Humana, Universidad de Burgos | Dept. Archaeology and History, La Trobe University) – Maria Ángeles Galindo-Pellicena (Centro Mixto UCM-ISCIH de Evolución y Comportamiento Humanos) – José Miguel Carretero (Laboratorio de Evolución Humana, Universidad de Burgos | Unidad Asociada de I+D+i al CSIC Vidrio y Materiales del Patrimonio Cultural (VIMPAC)) – Colin Smith (Laboratorio de Evolución Humana, Universidad de Burgos | Dept. Archaeology and History, La Trobe University) – Eneko Iriarte (Laboratorio de Evolución Humana, Universidad de Burgos)

In the context of caprine stable isotope research, there are very few studies on the Iberian Peninsula for the Chalcolithic period. During the Chalcolithic, farming practices were well understood, however, we can observe new cultural dynamics leading to hierarchical societies, as evidenced by individual burials in pits or tumuli with grave goods. At the site of El Portalón de Cueva Mayor (Sierra de Atapuerca, Burgos), burials are often associated with a lamb as a grave offering, indicating the importance of *Ovis*/*Capra* husbandry in their culture. The Chalcolithic layers show two phases: the pre-Bell Beaker Chacolithic (ca. 5000-4300 cal. BP), characterized by funerary use, and the Bell Beaker Chalcolithic (ca. 4000-3800 cal. BP), which shows evidence of habitation and sheepfolds. This study aims to contribute with additional biogeochemical data and new insights into the changes in management during this period compared to the Neolithic, focusing on primary and secondary products of sheep (*Ovis aries*) and goats (*Capra hircus*). To this end, caprine teeth from El Portalón de Cueva Mayor site were isotopically analyzed. Through the analysis of oxygen ( $\delta^{18}\text{O}$ ) and carbon ( $\delta^{13}\text{C}$ ) isotope sequences of enamel from dental series (first, second and third lower molars), we infer the seasonal management of births and their focus on meat production or secondary products such as milk or wool. To better understand the management of younger individuals, the lower deciduous molar, which develops during the first months of life, was also analysed. Here we compare the anthropic management of births between the Neolithic and Chalcolithic periods and an overall low mobility for this taxon. This implies an adaptation of caprine management, during this transition in the Northern Iberian Hinterland, for the acquisition of different resources depending on group needs throughout the year and we reflect on the cultural of the Chalcolithic burial practices.

105 GRAVE GOODS: BEYOND IDENTITIES

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** Grave goods, Burial archaeology, Funerary practices, Archaeological theory  
**Session organisers:** Frida Espolín Norstein (Stockholm University) – Samuel Kinirons (University College Dublin) – Colin Quinn (University at Buffalo) – André Nordin (Stockholm University)

SESSION ABSTRACT

Grave goods have been an integral component of funerary practices across various societies, but what roles did they play within these funerary traditions? Archaeologists have long recognised that grave goods provide a wealth of information about the deceased’s social roles and identities, but this has also led to these objects becoming seen as passive reflections of these roles and identities. Overreliance on these interpretations has obscured variations in the meanings and motivations of grave goods over time. By employing alternative interpretive frameworks, archaeologists can uncover new interactions between the deceased, the items they were buried with, and the people who buried them. This session invites papers that look beyond the interpretations of grave goods as props in societal construction and markers of status. We particularly welcome studies that examine the influence of memory, grief, and performative and private ritual in the formation of grave assemblages. Papers highlighting the interrelationship of bodies and grave goods are also encouraged to submit here. The body is the catalyst and main focus of the funerary practice and has been described by some as ‘the essential artefact’. Bioarchaeological data should thus be given due consideration alongside the artefacts themselves whenever possible. We hope that the session will include a broad range of alternative perspectives on grave goods from a variety of regions and periods. Our aim is to help broaden the discourse around how we interpret grave goods by highlighting the multiplicity of meanings and motivations behind the placement of objects in funerary contexts. Suggested topics include

- Ritual functions of grave goods



- Relationships between the deceased individual(s) and grave good.
- The role of grief and memory in the formation of funerary assemblages
- Object agency and biographies
- Broader regional/temporal overviews

CONTRIBUTION ABSTRACTS

2034. (UN)SACRED REMAINS: THE BODY AND FUNERARY ASSEMBLAGE OF MARIA FRANCISZKA KOZŁOWSKA IN THE CONTEXT OF HER LIFE AND POSTHUMOUS FATE

**Contribution format:** Oral  
**Contribution authors:** Danuta Greding – Mikołaj Dobek (Nicolaus Copernicus University in Toruń)

The crypt beneath the Sanctuary of Mercy and Charity in Płock serves as the burial site of three bishops and Maria Franciszka Kozłowska, founder of the Mariavite Church and the first woman to be excommunicated by the Pope. More than a resting place, her tomb is a focal point of devotion, embodying ongoing interactions between the deceased, the living community, and the sacred. The recent archaeological study of these burials, conducted during renovations in 2022, revealed not only a unique funerary assemblage but also traces of ritualized care, memory-making, and sacralization of the body. Kozłowska’s remains were found in a non-traditional wooden coffin, reflecting multiple reburials and the turbulent history of her legacy. Among the most striking grave goods was a sealed vessel containing her blood and hair, a clear indication of her continued presence in the spiritual and social world of the Mariavite community. This study explores how the selection, placement, and preservation of grave goods transcend the simple category of personal items. Instead, they function as active participants in a dynamic process of religious devotion, reinforcing Kozłowska’s role as a spiritual guide both in life and beyond death. By framing these grave goods through the lens of ritual practice, object agency, and cultural studies, we reconsider their role in shaping religious memory and communal mourning.

656. COULD HE BEAR THE SWORD? INTERPRETING AN EARLY MEDIEVAL GRAVE FROM IVANKA PRI DUNAJI, SOUTHWESTERN SLOVAKIA

**Contribution format:** Oral  
**Contribution authors:** Kristian Jócsik (University of Lodz) – Jakub Tamaškovič (Institute of Archaeology Czech Acad Sci, Brno)

Ivanka pri Dunaji, site Farkasek (Senec District), is among the most recently excavated early medieval burial grounds in southwestern Slovakia. A total of 119 graves were excavated at the site. This study focuses on Grave No. 17, representing a specific case of interaction between the deceased, the grave goods, and the living community that buried the man (aged adultus I; 20–29 years). The unusual nature of this burial is highlighted not only by the grave inventory itself but also by its deposition. The sword, spear, and a wooden bucket were placed on the lid of the wooden coffin. This uncommon practice diverges from the typical placement of grave goods directly into the burial pit (or coffin) next to the deceased. Can the sword thus be seen as a status marker granted to the deceased by the living community post-mortem or during the funeral ritual? This study aims to offer a comprehensive perspective on this interpretation: I.) The burial context suggests an indirect connection between the sword and the deceased. Did the sword symbolize the social role of this man, even if he did not have the opportunity to achieve it due to his early death? Or was it an expression of the power and status of the social group to which he belonged? II.) The sword has been researched using an interdisciplinary approach, allowing us to understand it not only as a passive grave good but also in terms of its manufacture and provenance. This helps us comprehend the efforts of those who handled the weapon before it became part of the burial assemblage. The discussion includes comparisons with analogous burials based on the site’s relative chronology and AMS 14C data. Grave No. 17 is also interpreted within the context of other excavated burials at the locality.

638. DRESSED IN GOLD: MEDIEVAL TEXTILES FROM ARCHAEOLOGICAL RESEARCH IN HALYCH-VOLHYNIAN LANDS (WESTERN UKRAINE)

**Contribution format:** Oral  
**Contribution authors:** Iryna Lutsyk – Vira Hupalo (I. Krypiakevych Institute of Ukrainian Studies of the National Academy of Sciences of Ukraine)

Medieval textiles were found in 53 burials in the Halych-Volhynian lands of Rus’ (13 of them in Gródek Upon the Bug River and 1 in Czermno (now Poland)). These are mainly gold and silver woven ribbons with a silk base, as well as clothing decorated with embroidery. The collection of textiles from Gródek Upon the Bug River is representative and so far the only one fully published. However, textile finds have also been discovered at a number of other sites: Peresopnytsia, Plisnesk, Zvenyhorod, Horodok, Zelenyi Hai, Ostap’ie, the sacred complexes of Halych (Krylos, Shevchenkove, Zalukva, Pitrych), Horodnytsia, Oleshkiv, Vasyliv, Sokilets, Bakota, Chermno.

The collection of textiles from the cemeteries of princely Halych is exceptional. In particular, a unique chiltse from a female burial. Finds from Zalukva and Horodnytsia are among the interesting examples decorated with ornithomorphic ornament. In the first case, the embroidered figure of the bird is turned towards the floral ornament, which is believed to symbolize the “tree of life”. Instead, the gold-thread embroidered border of the collar from Horodnytsia is decorated with an image of a row of birds, each of which is placed in separate arches. The considered fragments of fossil textiles represent the remains of post-mortem clothing. Comparing them with the “lifetime” clothing models reflected in iconography demonstrates a certain specificity of funeral robes. Characteristic elements of decoration and accessories indicate the formation of traditions associated with the ritual of post-mortem dressing of the body and approaches to preparing the remains for the subsequent stages of burial. It is worth noting that the decorative gold-woven elements of the robes and the personal items of the Christian cult placed in the funeral complex carried different meanings. Accompanying the deceased, these items represent funeral rituals closely related to individual eschatology.

2068. METALLIC TRACES ON BONES: THE BIOGRAPHICAL FUNCTION OF CLOTHING AND GRAVE GOODS IN AN ALPINE MODERN BURIAL CONTEXT

**Contribution format:** Oral  
**Contribution authors:** Lisa De Luca (University of Insubria, Varese) – Alessandro Asta (Ministry of Culture Superintendency ABAP) – Davide Pacitti (Independent Researcher) – Ilaria Gorini (University of Insubria, Varese)

The cemetery of the Church of Santi Simone e Giuda in Borca di Cadore (Belluno province, Veneto region, Italy) was excavated between 2021 and 2023 as part of an archaeological investigation. The excavation uncovered a total of 21 graves dating back to the 18th–19th centuries, remarkable for the presence of grave goods and taphonomic indicators that suggest these were clothed burials. Only through a biocultural approach—integrating data from archaeology, cultural anthropology, and bioarchaeology—can we attempt to shed light on the life histories of individuals. In the specific case of the Borca di Cadore cemetery, the close relationship between bodies, clothing, and grave goods—primarily understood in terms of spatial association—has made it possible to infer the personal histories of the deceased. These histories emerge through subtle variations in dress and funerary assemblages within the framework of a mortuary ritual codified by Roman Catholic traditions. Modern burial contexts offer a privileged field of study due to the availability of abundant historical and cultural-anthropological documentation, enabling a more precise contextualization of bioarchaeological findings with significant support from archival sources. Research focusing on these more recent periods allows for the continuous refinement of investigative methodologies that emphasize the synergy of multiple biocultural aspects, further reinforcing the value of this approach in reconstructing the lived experiences of past populations.

2208. CUSTOMS AND BELIEFS RECORDED IN COFFINS. DO WE HAVE ARCHAEOLOGICAL EVIDENCE FOR ETHNOGRAPHIC DATA? (17TH-19TH C., POLAND)

**Contribution format:** Oral  
**Contribution authors:** Magdalena Majorek-Lipowicz (Institute of Archaeology, University of Lodz)

Man is a constant observer of life and phenomena around him. The appearance of coffin burials in funeral rituals carried certain content and enabled conclusions regarding religiosity, social and economic status of the deceased and his family. Above all, however, coffins were a testimony to death. They were, and still are, an extremely important and in many ways valuable piece of grave goods. Their functions include information, protection, verification and identification. They are not an easy subject to study because, as I once wrote: “There are no two identical coffins and the history of each of them is unique, which makes this research subject extremely interesting, however, it does not make interpretive processes easier”. In ethnographic sources that record customs, practices and beliefs related to funerary rites, we often find descriptions of gestures and rituals related to the preparation of the coffin (searching for a maker, choice of raw material, choice of carpentry technique, deliberate leaving of shavings, decoration), the display of the deceased’s body in the coffin, the transport and the funeral ceremony. In my presentation I will contrast the information provided by ethnographic data with existing archaeological evidence that verifies (confirms or denies) the observance of customs and the use of specific practices. I will focus on sources dating from the 17th to the 19th century that refer to Roman Catholic burial rites in Polish lands.

408. GRAVE GOODS IN COLLECTIVE BURIALS: FOR ALL, SOME OR NONE? THE CASE STUDY OF CUEVAS DE FUENTES DE LEÓN (SPAIN)

**Contribution format:** Oral  
**Contribution authors:** Celia García-Domínguez (Universidad de Valladolid | Fundación Extremeña de la Cultura) – Teresa Fernández-Crespo (Universidad de Valladolid | University of Oxford)



Grave goods are key elements in the study of funerary practices. However, their role in collective burials has been barely explored. These graves usually contain fragmented and commingled human skeletal assemblages which were deposited during long periods together with some objects. Therefore, the individualization of the skeletal remains and its association to grave goods often is a difficult task. Late Neolithic/Chalcolithic collective burials of Cueva del Caballo and Cueva de Los Postes, both located in the Natural Monument Cuevas de Fuentes de León (Badajoz), in southwestern Iberia, serve as important case studies to approach this issue. Based on osteological and taphonomic biographies, formal and contextual archaeological data and radiocarbon dates, we suggest possible associations between grave goods and individuals. We also try to deepen into the potential meanings and motivations behind grave goods found in collective burials and how they can help address the influence of collective memory and the importance of tradition in these funerary deposits.

**2166. BURIED WITH MEANING: THE ROLE OF GRAVE GOODS IN THE ROMAN NECROPOLIS OF CRESCENTINO**

**Contribution format:** Oral  
**Contribution authors:** Alyssa Schrag (University of Pavia)

Between 1999 and 2003, a large Roman necropolis was uncovered in Crescentino (Vercelli), Northern Italy, during a building project. The 177 tombs, mostly indirect cremations, were only ever published in preliminary form (La Rocca, 2000). The pyre and grave goods found within these burials vary significantly, from single objects to assemblages containing up to 25 items, including rich glass vases, unguentaria, and mirrors, as well as tools of trade such as spindle whorls. These objects range from locally manufactured goods to imported Roman items, reflecting a broad spectrum of funerary choices and practices. This paper examines the relationship between grave goods and the rituals they took part in, considering how these interactions changed over time. By examining the selection, distribution, and contextual significance of these objects within graves, this paper highlights the active roles these items played in shaping funerary experiences and the ways in which the living chose to represent the dead. Additionally, this study considers how the function of grave goods may have shifted within the funerary context, as everyday objects transformed through ritual, symbolic offerings, or tools of commemoration. Decisions regarding grave goods did not happen in isolation. Therefore, this study also considers how the broader societal and economic context—in this case a settlement with Celtic influence located along the Ticinum-Augusta Taurinorum axis and the Dora Baltea and Po rivers—may have shaped funerary practices. By integrating these broader perspectives, this paper sheds new light on the complex motivations behind the inclusion of grave goods in the Crescentino necropolis, contributing to discussions on performative ritual, and the evolving roles of objects in Roman funerary contexts.

**939. STANDING IN THEIR SHOES: A PEOPLE AND COMPARISON BASED APPROACH TO INTERPRETING GRAVE GOOD RITES IN EARLY MEDIEVAL EUROPE**

**Contribution format:** Oral  
**Contribution authors:** Caitlyn Dunn (Macquarie University)

Grave good burial rites are a feature of cemeteries in many regions of Europe during the early medieval period. Grave goods have been used in scholarship to understand ethnic identities, migration patterns, and social status amongst the living. Currently, early medieval archaeology is moving towards using grave goods to understand the individual, and by doing this, as Fleming argues, we can “combat the...single story”. To date we have focussed on asking what grave goods mean, such as Härke’s 2014 article in Mortality. However, as per recent discussions of object biography and memory, it is people who give objects meaning. Based on a comparative study of furnished cemeteries from early medieval England (5th-8th centuries AD) and Croatia (6th-9th centuries), this paper argues that to interpret grave goods, we must attempt to understand the mindset of the people who chose to use them in the burial of their dead. This means that we need to consider individual personality and personal motivations, as well as external influences that were at play whenever a grave was created. This approach assumes that grave good burial rites, and the meanings behind grave goods, are complex, just as people are complex. Hence, there may have been many factors involved in the choice of whether to use grave goods or not, and which ones to inter with the dead. It also highlights that all interpretations of grave good meanings and uses must firstly be situated within the context of death and burial, and therefore, people’s emotions and beliefs about death and burial. To seek out these perspectives, this paper argues that comparative studies of graves and cemeteries, especially cross regional studies, are essential.

**1089. NOT AS IT SEEMS: A COMPARATIVE ANALYSIS OF ARCHAEOLOGICAL AND ANTHROPOLOGICAL DATA FROM SELECTED GERMANIC BURIALS FROM SEKULE, WESTERN SLOVAKIA**

**Contribution format:** Oral  
**Contribution authors:** Petra Dragonidesová (Institute of Archaeology of the Czech Academy of Sciences, Brno)  
– Ján Rajtár – Urszula Śmigielska (Institute of Archaeology of the Slovak Academy of Sciences, Nitra)

Cremation was the predominant mortuary practice among Germanic tribes in the Middle-Danubian Barbaricum. The interpretation of these cremation burials poses significant challenges for archaeological and anthropological research, primarily due to factors affecting the preservation of graves and the frequent incompleteness of grave assemblages. While researchers have attempted to establish correlations between artifact types and sex/age categories to facilitate interpretation in the absence of osteological data, the reliability of this methodology is often compromised, resulting in potential generalizations and misattributions of demographic characteristics. Our analysis of grave goods from the Germanic burial site at Sekule (western Slovakia), integrating both archaeological and anthropological data, underscores the limitations inherent in relying solely on artifact associations for such interpretations. Critically, the compromised integrity of these burial contexts, frequently characterized by incomplete inventories and insufficient skeletal material for anthropological analysis, must be acknowledged. Presented comparative analysis, which contrasts traditional artifact-based interpretations with conclusions drawn from anthropological evidence, reveals notable discrepancies and emphasizes the importance of a comprehensive, multi-disciplinary approach to the study of these burials.

**1494. COLLECTIVE MEMORY, INDIVIDUAL GRIEF AND PERFORMANCE IN MORTUARY PRACTICES AT THE END OF LATE BRONZE AGE IN SOUTHERN CARPATHIAN BASIN**

**Contribution format:** Oral  
**Contribution authors:** Daria Ložnjak Dizdar (Institute of Archaeology, Zagreb)

The southern Carpathian Basin, encompassing the river basins of the Drava, Sava, and the southern section of the middle Danube, is a region where diverse communication networks intersect, influencing the dynamics and adoption of change during transitional periods. One such process occurred at the end of the Late Bronze Age and the transition to the Early Iron Age, specifically during the first centuries of the last millennium BC. This paper presents a broader overview of mortuary practices, the relationships between the deceased and grave goods in the context of the widespread cremation burial rite at several sites (e.g., Batina, Sotin, Dolina) belonging to different communication spheres within the region. Objects and their biographies will be presented, revealing unique narratives on each grave based on bioarchaeological, archaeozoological, and other multidisciplinary data. Through examples of reconstructed grave scenarios, we attempt to interpret the individual and collective activities of families and communities involved in mortuary practices, as well as the role of communal memory and the grief of individuals close to the deceased. Material traces indicate that during the 9th and 8th centuries BC, some elements of mortuary practices were widespread and shared, while others remained localized or even individual within communities. The choice of objects and goods, along with the ways in which communities and individuals performed these practices, depended on their daily lives and available resources, as evidenced by the archaeological record. We can glimpse the meanings, motivations, and emotions that inspired and guided the farewell to the deceased.

**591. RITUAL AND REGIONALITY: THE ROLE OF GRAVE GOODS IN VIKING AGE FUNERARY PRACTICES**

**Contribution format:** Oral  
**Contribution authors:** Frida Espolin Norstein (Stockholm University)

Grave goods are a common feature of Viking Age burials and have long been used to explore the social roles and identities of the individuals buried with them. However, as this paper demonstrates, their use varied significantly across different contexts, reflecting complex cultural and ritual dynamics. Drawing on a database of over 1,300 graves and 5,500 artefacts, this paper examines large-scale patterns in the deposition of grave goods. By incorporating Viking Age burials from various sites in Sweden and Norway, as well as from the overseas settlements in Britain, Ireland, and Iceland, it highlights both regional distinctions and overarching similarities. This analysis enables a critical reassessment of the use of grave goods, questioning the extent of their uniformity and exploring the interplay between local, regional, and pan-regional traditions. The paper further argues that it is essential to understand grave goods as elements of ritualised practice, shaped by factors beyond individual or collective identities.



1290. BURIALS OR SACRIFICES? SOME CHARACTERISTICS OF INFANT REMAINS FROM MARIUPOL CEMETERY

Contribution format: Oral  
Contribution authors: Nataliia Mykhailova (Institute of archaeology of National Academy of Sciences of Ukraine)

The cemeteries of the Mariupol type of the Late Mesolithic and Neolithic, located mostly along the Lower Dnipro rapids, are characterised by their rich burial inventory. The cemeteries can be divided into two periods: Early Mariupol: 7000-5500 cal. BC and Late Mariupol: 5500-4000 cal. BC. Many of the dead were accompanied by elaborated ornaments made of bone, stone, pearl, carp teeth, deer canines and boar tusks. The study of these burial decorations provides information on the rites of the life cycle, including the ceremonies marking the change of age and social status, gender identification and marital status. The burials of the later phase of the cemeteries of the Mariupol type, are characterised by a particular richness and variety of the grave goods. There were numerous pearls and pendants of various materials: shells, bones, marble, jet, etc. The most impressive personal ornaments are the pierced boar tusks, which were abundant only in the cemetery of Mariupol; they belong to the burials of men, women and children. Some burials of children were richer than those of adults. A few of them contained special features such as a bone figurine of a bull, an axe and a pendant of porphyry, a rock crystal and so on. Probably these artefacts can prove a special sacral status or potential role of these children in the society. The position in the cemetery, the fragmentation and the specific inventory of some children’s burials are distinguishing. These are in particular the infant burial in the Sakarovka cemetery and the children’s skulls in the Lysogorskiy burial ground. The analysis of the remains and the inventory, mainly jewellery, suggests that they were evidence of sacrifices.

993. HUMAN-ANIMAL ENTANGLEMENTS BEYOND THE GRAVE: ANIMALS AND ANIMAL BODY PARTS IN FUNERARY CONTEXTS IN CENTRAL AND SOUTHERN PORTUGAL LATE PREHISTORY

Contribution format: Oral  
Contribution authors: Catarina Guinot (Universidade de Évora) – Nelson Almeida (Universidade de Évora, CHAIA, IN2PAST | Universidade de Lisboa, UNIARQ)

Funerary archaeological contexts are a major source of information regarding past societies. Human remains and grave good analysis have long been among the most prolific studies applied to these types of contexts. Considering the latter, this resulted in perspectives where the material record is mostly seen as a sort of proxy for the roles and identities of deceased individuals. During the last years, more-than-human and animal-human relations have resurfaced as approaches to the archaeological record. A wide corpus of studies has focused on Prehistoric funerary archaeology and human-animal relationships, but rarely do these perspectives combine. Late Prehistory funerary contexts are widespread in Central and Southern Portugal, with different typologies and funerary rites being described. Besides material culture, animal body parts and assemblages have been an integral part of these contexts. Concepts of structured deposition, segmentation, feasting and votive goods have been used in the interpretation of some of these funerary contexts. However, these have looked mostly at animal remains as related to the deceased roles and identities (which might be the case in several of the cases), while other interpretative approaches have not been widely attempted. A synthesis on animals and animal body parts found on Neolithic, Chalcolithic and Bronze Age (ca. 6th-2nd millennium BCE) Central and Southern Portugal funerary contexts is presented. We consider information concerning funerary behaviour, human biological profiles and zooarchaeology aiming to discuss human-animal relationships and funerary contexts, and how these may relate to aspects such as roles and identities, but also to other entanglements where animal agency and ideological variables can be meaningful.

788. INTERPRETING WORKED LITHICS IN EARLY MEDIEVAL AND VIKING AGE GRAVES IN IRELAND AND BRITAIN: A PRELIMINARY ASSESSMENT

Contribution format: Oral  
Contribution authors: Samuel Kinirons (University College Dublin) – Cian Hogan (Iarthar Heritage)

This paper will explore the poorly understood phenomenon of worked lithics in early medieval and Viking Age graves in Ireland and Britain. Often dismissed as residual, it is increasingly recognised that many were deliberately placed in graves. Uncertainty remains on how this act should be interpreted. Most of these artefacts consist of flakes of struck flint which are difficult to date. It is possible that they are contemporaneous with the burials – created and used as part of a toolkit, such as strike-a-lights. Alternatively, they could derive from prehistory – their use-life extended through incorporation into later belief systems. This touches upon a broader, long-standing contention which frequently occurs in the study of grave goods. Were they to be used by the dead or were they symbols intended to evoke belief, identity and memory. Here we present a preliminary summation of the existing evidence. In the cases where it appears that they significantly predate the burial, we suggest a range of theories on how they might have been conceptualised by the people placing them in the graves. Drawing upon

ethnographic and archaeological parallels, we will examine whether they were acknowledged as antiquities or conceived of as magico-religious curiosities. Despite the unimposing and enigmatic nature of many of these artefacts, they represent a means of thinking critically about how grave goods are interpreted. We argue that the occurrence of worked lithics within these graves undermines the dichotomy of the functional and symbolic interpretations of grave goods. It seems probable that some were indeed made in prehistory and that they were later found, curated, repurposed and subsequently interred. The blurring of lines between practical considerations and symbolic resonances should not be unexpected when one considers that these artefacts are associated with the disposal of the dead and the creation of fire.

1784. THE CUTTING EDGE: A RELATIONAL-ONTOLOGICAL PERSPECTIVE ON SHARP OBJECTS IN EARLY IRON AGE BURIALS

Contribution format: Oral  
Contribution authors: André Nordin (Department of Archaeology and Classical Studies, Stockholm University)

Sharp objects constitute a broad category of artefacts encompassing any object with a sharp edge or point. Despite their rarity in burials in the Early Iron Age of Sweden, sharp objects are often interpreted as relating to the buried dead by acting as signifiers of gender, social roles, status, wealth and power. However, such representational interpretations obscure other possibilities for why sharp objects are deposited in burials. In this paper, I will explore the phenomena of sharp objects in Early Iron Age burials from a relational ontological approach. Crucial to this approach is a strong focus on empirical observations pertaining to burials with sharp objects. Another key method employed is ethnography of sharp objects in rural Swedish and Finnish societies in the early modern period. Rather than applying ethnography as a direct analogy, ethnographic observations can be utilized as a tool to break free from modern Western ontological conceptions of what objects are and can be. Combined, the approach used in this paper can help expand the possibilities of what sharp objects in burials can be. As a case study to exemplify this approach, I use the Early Iron Age cemetery of Sörby-Störlinge on Öland, Sweden. I end by arguing that the significance of a relational ontological approach is that, using appropriate methods, it can help us move beyond past frameworks and potentially lead us into new fruitful territories of understanding past objects in past worlds.

1294. AXES OF DIFFERENCE: EXPLORING MULTIPLICITY IN SCANDINAVIAN STONE BATTLE-AXES

Contribution format: Oral  
Contribution authors: Amber Roy (Stockholm University)

The polished stone battle-axe is a defining artefact of the Scandinavian Battle Axe Culture (BAC) (3000/2800–2300 BC), frequently found in burial contexts alongside male inhumations and other grave goods. With few BAC settlements known, graves and their assemblages are the prime source for interpreting BAC people. Battle-axes have often been interpreted through fixed, symbolic frameworks that ascribe them singular meanings — as markers of the status, identity, or masculinity of the deceased. However, such interpretations overlook the inherent multiplicity and dynamic roles of these objects, both within and beyond the burial context. Drawing on use-wear analysis, pXRF data, posthumanism and depositional contexts, this paper challenges static interpretations by exploring the variability and difference seen through the itineraries of BAC battle-axes. Rather than representing a fixed identity or status, the multiplicity and variation of battle-axes highlight how variability within artefact itineraries and grave assemblages demonstrates multiplicities in meaning and function. These multiplicities impact our understanding of these artefacts and BAC burials. Indeed, variation is difference. Understanding where differentiation occurs and how this can create change allows us to better understand ongoing transformations within social and material networks. In all, by moving beyond singular symbolic interpretations, this presentation underscores the importance of recognising variability and multiplicity as essential to understanding the roles grave goods played.

585. DISSECTING THE WARRIOR.A DUALISTIC DECONSTRUCTION OF A WARRIOR BODY AND IDENTITY IN LATE BRONZE AGE KEFALONIA, GREECE

Contribution format: Poster  
Contribution authors: Efrossini Vika (American School of Classical Studies at Athens) – Eleni Papafloratou (Ephorate of Antiquities Kefalonia and Ithaca) – Anna Linderholm (Stockholm University) – Lisette Kootker (Vrije Universiteit Amsterdam) – Alice Toso (University of Bonn) – Vasiles Tatsis (American School of Classical Studies at Athens) – Grigoris Grigorakakis (Ephorate of Antiquities Kefalonia and Ithaca)

As a rule, Late Bronze Age burials with weapons signal an automatic interpretation about the status of the individual buried. A recent excavation in Kefalonia revealed the remains of a burial that had been furnished with several weapons and a boar tusk helmet. The unmarked grave and the poor skeletal preservation of the body



make this a unique find, that challenges our preconceived interpretations. We implement here a dualistic deconstruction of this burial: firstly, we break the skeleton down to the molecular level, implementing a multitude of state-of-the art analytical approaches. Then, we strip the ‘warrior identity’ down to its constituents, demonstrating how a reverse intersectional approach is obscuring regional and temporal particularities for burials with weapons, imposing a ‘one fits all’ interpretation. Finally, we use our approach to de novo reconstruct and critically resituate the multiple concepts of a burial with weapons in a time period heavily coloured by the idea of institutionalized warriorhood.

745. MEDIEVAL CAP FROM HAN BILA, BOSNIA AND HERZEGOVINA-ANALYSES OF FABRIC MATERIAL WITH SEM-EDS METHOD: LUXURY OR FAKE DESIGNER CLOTHING?

**Contribution format:** Poster  
**Contribution authors:** Adisa Lepic (National museum of Bosnia and Herzegovina/ Department for Archaeology, Section for Middle Ages) – Almir Olovčić (Independent) – Azra Bečević-Šarenkapa (National museum of Bosnia and Herzegovina/ Department for Conservation and Restoration) – Kerim Hrvat (University of Sarajevo/ Faculty of Science and Mathematics, Department of Physics)

In February 1950, during the quarry works at the Han Bila, workers have found a stone sarcophagus, with some bones and textile inside. Inside the sarcophagus, a cap, scuffia type was covering a deceased’s person face. Based on the materials used, it is assumed that the person inside the sarcophagus was a woman. After the excavation, cap was treated with conservation chemicals and preserved in the National Museum of BiH, in Sarajevo all these years. The aim of this research was to analyse material used for the making of scuffia, especially gilded parts. For this occasion, a non-destructive SEM-EDS approach was chosen. Samples were taken from four different parts of cap; two samples were gilded threads and two were samples of textile. Analysis showed that the initial chemicals used for conservation caused significant damage to the material, creating a thick paste, limiting the potential for proper SEM analysis. Yet, it was possible to get insight into some parts of the gilded thread analysed. Based on the few spots where the thread was free of the paste, the results showed predominantly copper, silver and gold. Their chemical content suggests that the wires used for creating threads were copper based, gilded with combination of silver and gold, a typical custom in Medieval times. The presence of sulphur and chlorine suggests the presence of passive surface protection layer of AgCl and Ag2S. SEM imagery showed that the thread could be classified as a more common S-twisting type (the other being the Z-type).

2488. AMBER RING-SHAPED PENDANTS IN LA TÈNE GRAVES IN CENTRAL EUROPE

**Contribution format:** Poster  
**Contribution authors:** Filip Korn (Department of Archaeology and Museology Masaryk University Brno)

This contribution examines the presence of amber ring-shaped pendants in graves in Central Europe during the La Tène period. Amber, as a well-known indicator of long-distance trade and connections in prehistory and proto-history, plays a crucial role in understanding the socio-economic dynamics of the time. The origin of this specific type of pendant can be predominantly found in the Carpathian Basin, where more than half of the discoveries originate and are typically dated to the LT B1 – C1 horizon. (Duleba – Markiewicz 2023, 317), where a notable concentration of such artifacts has been found. These pendants are typically attached to a delicate bronze chain, although in some cases, silver chains are also present. It is possible to determine certain associations between artifacts and gender based on burial context and the types of items found with the deceased. However, the presence of some artifacts, such as amber pendants, may not be strictly gendered and could potentially appear in graves of both men and women, especially in the case of high-status individuals or individuals with specific roles in society.

106 MOUNTAIN PASTORALISM THROUGH TIME: ARCHAEOLOGICAL INSIGHTS AND CONTEMPORARY CONNECTIONS

**Session theme:** 3. Exploring methods in research, education and communication  
**Session format:** Regular session  
**Session keywords:** Mountain livestock, interdisciplinarity, diachrony, pastoralism, environmental impact, archaeological dissemination & knowledge transfer  
**Session organisers:** Ermengol Gassiot Ballbè (Departament de Prehistòria. Universitat Autònoma de Barcelona) – Mélanie Le Couédic (ITEM Université de Pau et des pays de l’Adour) – Francesca Romana Del Fattore (University of Newcastle - School of History, Classics and Archaeology) – Ariadna Nieto-Espinet (University of Lleida)

SESSION ABSTRACT

Recent advancements in archaeology across European mountain regions have increasingly highlighted the study of livestock management, revealing a rich diversity of practices adapted to different geographical and chronological contexts. From the Neolithic to the present day, livestock husbandry has been recurrent in mountain communities, shaping local economies, environments, and social dynamics. This continuity reflects not only the adaptability of these communities but also the long-standing impact of livestock practices on mountain landscapes. This session explores how livestock management left its mark through diverse archaeological evidence: zooarchaeological remains, animal management artifacts, manure deposits, sheepfold caves, enclosures, and impacts on paleo-vegetation. These traces reveal not only the continuity of mountain pastoralism but also dynamic shifts in techniques, social relevance, and ownership patterns over time. We invite the submission of papers that address both scientific studies on livestock management in mountain areas and archaeological outreach initiatives aimed at revalorising these practices in their current territories. This session is open to research exploring common themes across different regions and periods, including the characterisation of mobility patterns, grazing methods, pastoral and herd management strategies, environmental impacts, and diachronic changes. Additionally, we particularly encourage contributions that integrate archaeological outreach and knowledge transfer to local communities, as well as cultural heritage and sustainable development initiatives. Such efforts foster a meaningful connection between scientific research and its present-day social impact. Through this interdisciplinary dialogue, we hope to gain a comprehensive view of mountain pastoral societies, their rhythms, transformations, and the potential of archaeology to elevate their recognition and appreciation in today’s world.

CONTRIBUTION ABSTRACTS

1044. INVESTIGATING LIVESTOCK FARMING AND ENVIRONMENTAL CHANGE SINCE MEDIEVAL TIMES IN THE KERRY MOUNTAINS, IRELAND

**Contribution format:** Oral  
**Contribution authors:** Eugene Costello (University College Cork | Stockholm University) – Benjamin Gearey (University College Cork)

This paper presents results from on-going research on late medieval and early modern pastoralism in the mountains of Kerry in south-west Ireland. Today this is a landscape dominated by extensive sheep grazing with minimal day-to-day herding taking place. Up to c.1900, however, cattle and goats were more dominant and since they were dairy animals there was also more day-to-day herding involved. These activities have left significant traces in the landscape, including hut sites, enclosures and pasture boundaries. However, it is only in the last couple of decades that excavations have taken place at such sites in Ireland and in other mountainous areas across the north of Europe. We will present results from recent excavations at abandoned herders’ huts in Kerry in order to shed light on the chronology of herding in this area. We will also present results from pollen analysis, place-name research and historical analyses which complement the excavation evidence. In undertaking this work, it is becoming clear that the environment has changed significantly since late medieval times. The paper will therefore also consider the impacts of livestock farming on mountain habitats and vegetation over time, especially in the context of increasing demands for food and other products from the late medieval period onwards. The challenges of ‘applying’ past environmental information in today’s world, in the areas of habitat management and conservation, will be discussed briefly too.

487. MOUNTAIN PASTORALISM IN THE SOUTHERN CENTRAL PYRENEES SINCE THE MID-HOLOCENE: SOME ARCHAEOLOGICAL AND PALAEOECOLOGICAL INSIGHTS

**Contribution format:** Oral  
**Contribution authors:** Ermengol Gassiot Ballbè (Departament de Prehistòria. Universitat Autònoma de Barcelona) – Ignacio Clemente-Conte (Institución Milà i Fontanals (CSIC)) – Sara Díaz-Bonilla – Sergi Mata-Ferrer – Laura Obea Gómez (Departament de Prehistòria. Universitat Autònoma de Barcelona) – Javier Rey-Lanaspa (Dirección General de Patrimonio Cultural, Gobierno de Aragón) – David Rodríguez-Antón (Departament de Prehistòria. Universitat Autònoma de Barcelona) – Guillem Salvador-Baiges (Deutsche Archäologisches Institut) – Alejandro Sierra (Università di Pisa)

For the last 20 or 30 years, archaeology in southern Europe has been paying increasing attention to high mountain areas, bringing to light extensive sequences of occupation, often covering practically the entire Holocene. Their study allows us to characterize different modes of occupation of these spaces and to identify livestock farming as one of the central activities in these processes from the ancient Neolithic period onwards. In this communication we present the results of 20 years of research on the southern slope of the central Pyrenees. Intense surface surveys have made it possible to document hundreds of archaeological sites largely related to pasture areas above



the current timberline. The characterization of these sites, largely vestiges of huts and enclosures, allows them to be assimilated to a large extent to livestock practices of the last millennia. The excavation of some of these sites provides sequences of occupation over several millennia, which suggest that the same places are repeatedly reoccupied over time. However, this recurrence in the locations of the settlements does not mean that the activities carried out in them remain stable over time. On the contrary, archaeological excavations and detailed analyses of these sites illustrate changes in the ways in which high mountain areas have been exploited over time. In some periods a clear livestock specialization of the occupations can be observed, while in others their coexistence with some type of agriculture can be seen. Patterns of mobility and interconnection with the lowlands also seem to vary over time. This dynamism is also reflected in changes in the intensity of human impact on high mountain environments, as palaeoecological evidence shows. In this sense, it illustrates that today’s altimontane landscapes are also the result of thousands of years of human history.

**758. FROM DIVERSIFICATION TO SPECIALIZATION: EVOLUTION OF LIVESTOCK STRATEGIES IN THE PYRENEES SINCE THE NEOLITHIC**

**Contribution format:** Oral  
**Contribution authors:** Sergi Mata Ferrer – Ermengol Gassiot Ballbé (Departament de Prehistòria, Universitat Autònoma de Barcelona) – Alejandro Sierra (Dipartimento di Civiltà e Forme del Sapere, Università di Pisa) – Javier Rey Lanaspá (Departamento de Educación Cultura y Deporte del Gobierno de Aragón) – Maria Saña Seguí (Departament de Prehistòria, Universitat Autònoma de Barcelona) – Ignacio Clemente Conte (Departamento Arqueología y Antropología, Arqueología de las Dinámicas Sociales (IMF-CSIC))

For more than a decade, archaeological research in the inland mountain ranges of the central Pyrenees has provided an extensive network of information on the economy of these mountainous areas, where livestock farming has played a fundamental role. The archaeozoological analysis of several high mountain sites, together with the documentation of livestock structures along the valleys, allows us to propose different interpretations of pastoral practices over time. These practices have varied according to the period, since livestock activity has been recorded from the beginning of the Neolithic period to the present day. Traditionally, early neolithic livestock husbandry in mountain areas has been associated with large seasonal movements of livestock, with the ascent to high altitude pastures during the summer. However, recent studies suggest that livestock activity in this period was carried out on a local and domestic scale, linked to permanent settlements and short-distance movements. Numerous sites, especially in caves, indicate that during late prehistoric times there were diversified herds composed of sheep, goats, cattle and, in this case, swine. These practices differ from later livestock models in the central Pyrenees, which changed to a system more oriented to a seasonal use of high-altitude pastures with specialized settlements. Over time, this model left as a testimony the presence of enclosures and pastoral huts, reused over the centuries for the exclusive management of sheep, goats and cattle.

**444. PASTORAL (DIS)CONNECTIONS. THE DECLINE OF THE TRATTURI NETWORK IN CENTRAL-SOUTHERN ITALY: RECENT CHANGES IN HERD MANAGEMENT STRATEGIES AND SOCIO-ECONOMIC IMPLICATIONS.**

**Contribution format:** Oral  
**Contribution authors:** Francesca Romana Del Fattore (Newcastle University - School of History, Classics and Archaeology)

In Central-Southern Italy, where pastoral activities are documented since the Early Neolithic phases (7h-6th mill BC), the historic transhumance network included about 3.000 km of iconic droveways (tratturi), part of which certainly date back to pre-protohistoric times. An articulated system along which animals, seeds, people, traditions, ideas and genes moved for centuries. Agricultural transformation, pre- and post-unification political and economic trends, competition from foreign wool, conflicts and – last but not least – the social changes of the post-war period have disrupted the Italian transhumance system and the related paths network, encouraging depopulation and socio-economic degradation. This is particularly evident along the core of the Apennine ridge – between Abruzzo, Molise, Campania and Apulia – where there are widespread abandonment phenomena, aggravated by seismicity, anthropic impact and recent historical-political events. Yet until the middle of the last century, these regions were closely interconnected through the seasonal movement of flocks: hundreds of thousands of sheep moved twice a year. What are the consequences of the collapse of the transhumance system for local landscapes and communities? What remains of the network of pastoral routes? Which solutions have been adopted by modern breeders in terms of their mobility patterns? Can archaeology be a concrete tool to raise the awareness of local communities and shepherds regarding the protection of heritage and pastoral landscapes, to inform future policies and to promote good management practices? We will try to answer these questions through two case studies from Abruzzo and Puglia, which are part of an ongoing Marie Curie project - PaTHS. Pastoral Tracks Heading South. The evolution of the droveways (tratturi) in Central-Southern Italy.

**1277. THE MOUNTAIN ECONOMY OF MARCESINA PLAIN (VI): STRUCTURES AND PASTORAL PRACTICES THROUGH ARCHAEOLOGY, ETHNOGRAPHY, AND HISTORICAL MEMORY**

**Contribution format:** Oral  
**Contribution authors:** Veronica Venco (University of Sassari) – Armando De Guio (University of Padua) – Sara Zecchinato (University of Sassari) – Luigi Magnini (University Ca’ Foscari of Venice)

In the eastern part of the Veneto region, the Asiago Plateau (VI), located within the province of Vicenza, has consistently held a vital role in pastoral dynamics, particularly regarding high-altitude activities. Characterized by extensive pastures interspersed with evergreen woodlands, this area includes the Marcesina Plain at 1,300m a.s.l. on its north-eastern border. Historically, Marcesina has been a shared jurisdiction between Veneto and Trentino, demonstrating evidence of human habitation that dates to the Palaeolithic period. This region’s rich environmental diversity has rendered it an ideal setting for mountain pasturing, with diachronic evidence of such practices reflected in both protohistoric and historic “malga” structures (alpine hut). This contribution intends to present the preliminary results of the landscape investigations carried out between 2022 and 2024, focusing on identifying evidence related to the gradual use and evolution of the environment and pastoral resources typical of mountain regions. These investigations revealed the presence of substantial agro-pastoral activities throughout various historical periods, which have left specific archaeological traces related to the alpine economy. Remote sensing and field investigations have revealed a range of structural types; however, their interpretation can be complex, particularly due to the limited material culture directly associated with these practices. In this context, the complementary nature of ethnographic investigations and archival research has proven invaluable, assisting in the clarification of structural patterns and the historical management of herds and pastures. Additionally, this approach has fostered a deeper understanding of the intricate socio-economic relationships that have influenced the pastoral economy and its communities over time. These dynamics are evident in historical documents and echoed in the strong sense of identity and belonging expressed by local pastoralists during ethnographic interviews. Thus, it is essential to advocate for the promotion and safeguarding of the cultural heritage that is intricately woven into the pastoral landscape of Marcesina.

**237. BEYOND SHEEP: SWINE HUSBANDRY IN THE PYRENEAN MOUNTAINS**

**Contribution format:** Oral  
**Contribution authors:** Christine Rendu – Maïalen Gauthier (TRACES Laboratory, CNRS – University of Toulouse) – Romain Vercasson – Baptiste Mellier – Muriel Llubes (GET Laboratory, CNRS – University of Toulouse) – Josu Narbarte (University of the Basque Country | Aranzadi Zientzi Elkartea) – Eneko Iriarte (University of Burgos) – Carine Calastrenc (TRACES Laboratory, CNRS – University of Toulouse) – Mélanie Le Couédic (ITEM laboratory, University of Pau)

The archaeological studies on summer grazing conducted in the Pyrenees have, until now, primarily focused on sheep farming, for which the material evidence is the most visible. All sources, whether archaeozoological, written, or oral, nevertheless show the presence in upper pastures of other types of livestock, driven there in single-species herds or in association with other species. While high-altitude swine husbandry is attested almost everywhere, including in the eastern Pyrenees, it is particularly present in medieval and modern written sources relating to the Basque Mountains. But what are its traces? In recent years, the hypothesis has spread that the numerous mounds recorded in the summer pastures of the French Basque Country by the archaeologist Jacques Blot - mounds that are different from Protohistoric tumuli – correspond to pig huts, attesting to the importance of this medieval and modern pig farming. After a historiographical overview, this communication will present recent works aimed at confirming or refuting this hypothesis. Conducted from an interdisciplinary perspective, they have combined ethnographic surveys of contemporary pig farming practices and a new series of archaeological approaches: analysis and mapping of Jacques Blot’s inventories, comparison of this inventory with new field surveys, geophysical exploration (electrical mapping and tomography), and sedimentary coring. The results of these studies, with their convergences and contradictions, show the difficulty in characterizing these mound structures, which might nonetheless be essential to understanding the socioeconomic changes in high-altitude pastoralism over the last millennium.

**175. THE ECHOES OF HERDS : ARCHAEOLOGY OF MOUTAINS IN THE DIGITAL ERA**

**Contribution format:** Oral  
**Contribution authors:** Carine Calastrenc – Christine Rendu – Nicolas Poirier – François Baleux (TRACES) – Nicolas Dobigeon (Université de Toulouse) – Nicolas Mellado – Arthur Chiron (IRIT) – Marie-Claude Bal (GEODE) – Josu Nabarte Hernandez (Aranzadi Zientzi Elkartea) – Matthieu Le Bailly (Chronoenvironnement)



It has taken three decades of interaction and dialogue between the humanities and environmental sciences, and a wealth of methodological advances, to ensure that high moutains are seen as something other than immutable. Subjected to integrated interdisciplinary questioning, they reveal complex dynamics that vary in time and space. By historicizing mountains over the long term, we reverse the global point of view on societies, and reconsider the totality of valley systems. To be a mountain archaeologist is to perceive the interactions between nature and human activities over the long term, to identify spatial and temporal dynamics, to measure the impact and adaptability of know-how to social and economic changes, and to assess their implications. In this context, it has to be said that the teams involved in this research are faced with the problem of acquiring and processing primary information. An essential prerequisite for all archaeological research, mountain prospecting has its own specificities and methodological challenges. Since 2018, the TAHMM program has been seeking to overcome two methodological hurdles: How can we go beyond the threshold of visible surface structures to enrich information with those made of perishable materials or covered by vegetation? How can we systematize acquisition in order to process larger areas more quickly and in greater detail? Technological advances (satellite images, airborne lidar, drone-based sensors (photogrammetry, thermography, multispectral, lidar), geophysical equipment (georadar, magnetometer, resistivimeter), soil chemistry and DNA) are opening the way to new multiscalar acquisition procedures. New data processing tools, work on software ergonomics and the possibilities offered by artificial intelligence all point to new ways of optimizing/automating the detection of archaeological remains at altitude, and of understanding the subsoil and the species kept in this initial approach.

**1750. MAPPING BIOAVAILABLE STRONTIUM IN THE WESTERN CATALAN PYRENEES: A BASELINE FOR RECONSTRUCTING HERD MOBILITY IN MOUNTAIN LANDSCAPES**

**Contribution format:** Oral  
**Contribution authors:** Rubén De La Fuente Seoane (Universitat de Lleida | Universitat Autònoma de Barcelona) – Leopoldo Pena – Ester García-Solsona (Universitat de Barcelona) – Ermengol Gassiot-Ballbé (Universitat Autònoma de Barcelona) – Ariadna Nieto-Espinet (Universitat de Lleida)

The RePiCa (Re-thinking Pirenean Cattle Management in the Context of Climate Change) project investigates long-term changes and continuities in livestock management in the Lleida Pyrenees. One key research focus is reconstructing past livestock mobility through a zooarchaeological and stable isotope approach, analysing strontium (Sr) and oxygen (O) isotopes in dental enamel. Additionally, a baseline bioavailable strontium map is being developed for the western Catalan Pyrenees for the first time in this region. The 87Sr/86Sr ratio provides insights into past animal mobility, as strontium transfers from the geological substrate into the trophic chain, integrating into plants and animals. Strontium is then absorbed into dental and skeletal tissues, preserving the isotopic signature of the region of origin. Simultaneously, oxygen isotope variations ( $\delta^{18}\text{O}$ ) in enamel reveal seasonal mobility patterns, offering key information on herd management, transhumance calendars, and altitudinal land use throughout the year. To determine bioavailable strontium levels in this area, a sampling program was conducted, collecting modern vegetation samples contextualized both geographically and environmentally. The methodology developed seeks to standardize the sampling and analytical process, integrating Geographic Information Systems (GIS) in both fieldwork and laboratory analyses. Furthermore, it emphasizes open-access data repositories to facilitate future research reuse. A preliminary correlation is now being explored between bioavailable strontium levels, Pyrenean landscape characteristics, and isotopic data from animal dental enamel, establishing an initial reference framework for studying pastoral mobility patterns in this mountain region. The preliminary results of this baseline strontium map will be compared with zooarchaeological data from Cova de l’Home Mort (Lleida Pyrenees), a Bronze Age site with evidence of pastoral activities. This study enhances our understanding of historical extensive livestock management, establishes a standardized methodology, and facilitates comparisons across regions and periods, emphasizing the historical and contemporary relevance of pastoralism in mountain landscapes.

**761. HERDING AROUND THE LAKES: INSIGHTS INTO NEOLITHIC SETTLEMENT IN THE CENTRAL PYRENEES FROM ARCHAEOLOGY AND PALAEOENVIRONMENTAL STUDIES INCLUDING SEDADNA**

**Contribution format:** Poster  
**Contribution authors:** Alejandro Sierra (Dipartimento di Civiltà e Forme del Sapere, Università di Pisa) – Lourdes Montes (Universidad de Zaragoza, Grupo P3A-IUCA) – Irene Julián-Posada – Graciela Gil-Romera – Penélope González-Sampériz (Instituto Pirenaico de Ecología (IPE-CSIC))

The onset of agro-pastoral economies in the Iberian Peninsula marked the human exploitation of ecological niches that had previously remained largely unused and whose natural conditions had been minimally altered. This trend is particularly evident in mountainous regions, which began to be occupied more intensively during the Neolithic, not only for grazing but also for diverse resource exploitation. Within this context, the process of Neolithization in the Pyrenees stands out, as farming and herding communities started settling in the region

from the second half of the 6th millennium cal BC. Over time, these mountain occupations had an unprecedented impact on the environment, reshaping landscapes to align with human interests, even in altitude areas. This study provides a synthesis of the available data on Neolithic occupation and its impact in the central Pyrenees, based on the analysis of around twenty archaeological sites. It also incorporates information derived from paleoecological records, such as pollen and fossil spores obtained from lacustrine sequences, with particular emphasis on new results from ancient sedimentary DNA (sedaDNA) analysis. These indicators not only help reconstruct past vegetation dynamics but, thanks to sedaDNA, also allow the identification of local domestic animal’s presence, offering a more detailed perspective on past ecosystems and human influence on them. The integration of this data enables the reconstruction of territorial occupation models practiced by Neolithic communities and their evolution from the onset of the Neolithic to the beginning of the Bronze Age. This approach also examines how natural climatic changes, such as the onset of the Neoglacial in mountainous areas, may have influenced these processes, while assessing the interplay between climatic variability and anthropogenic impacts on landscape transformation and vegetation formations construction.

**1667. PETRA. IN SEARCH OF DRY STONE BUILDINGS IN THE PYRENEES**

**Contribution format:** Poster  
**Contribution authors:** Melanie Le Couedic (ITEM university of Pau) – Benoit Pace (ITEM university of Pau | IRAA Upr 5500) – Alain Champagne – Patricia Heiniger-Castéret (ITEM university of Pau) – Hadrien Rozier (Centre d’Études Supérieures de la Renaissance)

Dry stone construction, closely linked to pastoralism, is a key part of the cultural heritage of the Pyrenees. Hundreds of kilometres of walls, paths, huts and other infrastructure shape the cross-border landscape of this region, having evolved thanks to age-old skills that have structured pastoral areas. These constructions, which have been used for centuries to support agriculture and livestock farming, have been recognised by UNESCO as intangible heritage of humanity since 2018. They illustrate a traditional know-how that has marked the Pyrenean landscape since prehistoric times. Dry stone heritage is an important resource for the development of sustainable and diversified tourism, helping to enhance the value of mountain areas. However, this heritage remains fragile and requires cross-border cooperation to safeguard it. The POCTEFA PETRA project aims to promote this cultural heritage through research and documentation, as well as the inventory, mapping and geolocation of dry stone constructions. The project aims to enhance the visibility and sustainability of dry-stone buildings, while capitalising on good local practice. In this way, it contributes both to the preservation of this ancestral technique linked to pastoralism and to its use as a tourist and cultural resource.

**1698. TRACING THE FIRST FARMING COMMUNITIES INTO THE PYRENEES: NEW EVIDENCE OF EARLY SHEEP IDENTIFIED THROUGH ZOOMS ANALYSES**

**Contribution format:** Poster  
**Contribution authors:** Celia Díez-Canseco (BioArch - UMR 7209, CNRS/ Muséum National d’Histoire Naturelle | Institut Català de Paleoecologia Humana i Evolució Social (IPHES-CERCA)) – Héctor Del Valle (Institut Català de Paleoecologia Humana i Evolució Social (IPHES-CERCA) | Departament d’Història i Història de l’Art, Universitat Rovira i Virgili) – Eudald Carbonell (Departament d’Història i Història de l’Art, Universitat Rovira i Virgili | Institut Català de Paleoecologia Humana i Evolució Social (IPHES-CERCA)) – Michael Buckley (School of Natural Sciences, Manchester Institute of Biotechnology, University of Manchester) – Carlos Tornero (Departament de Prehistòria, Universitat Autònoma de Barcelona | Institut Català de Paleoecologia Humana i Evolució Social (IPHES-CERCA))

In the Iberian Peninsula, the occupation of mountain areas by the first farming communities is still poorly understood. In the Pyrenees, one of the main mountain ranges of northern Iberia, the archaeological sites linked to these occupations are scarce. Moreover, these sites often lack well-preserved bone assemblages, especially when located in exposed rock shelters or open-air locations, which prevents a complete characterisation of the economic background of these occupations. Specifically, the presence of sheep – a reliable evidence of farming communities in areas where wild sheep species are absent – is difficult to assess due to this limited availability of bone remains. Recently, a new site located in eastern Pyrenees has been excavated (Bauma dels Fadrins, Queralbs, Spain) where potential Early Neolithic occupations have been documented, yielding a rich bioarchaeological record. Caprine bone remains are abundant, but the identification of domestic caprines through traditional osteological methods is challenging due to bone fragmentation and similarities with other species, especially wild goat and chamois. Here, we present preliminary data from a new study where a wide set of bone samples from this site has been selected for ZooMS analyses. The study aims to identify the presence of sheep linked to these occupations, and to provide reliable radiocarbon dates of first farming communities for this area. The potential herd composition at the species level is also investigated. The results point to one of the earliest evidence of sheep



in the eastern areas of the Pyrenees.

107 SOCIAL TRANSFORMATIONS ALONG THE DANUBE AND ADJACENT BALKAN REGIONS DURING THE 2ND MILLENNIUM BCE

Session theme: 8. Along and across the Danube!  
Session format: Regular session  
Session keywords: Bronze Age, Balkan Prehistory, Social Transformations, Settlement Archaeology, Social Landscape, 2nd Millennium BCE  
Session organisers: Philipp Stockhammer (LMU Munich | Max Planck Institute for Evolutionary Anthropology, Leipzig) – Bogdan Athanassov (New Bulgarian University Sofia) – Barry Molloy (University College Dublin) – Alexandra Gävan (University of Cologne)

SESSION ABSTRACT

The 2nd millennium BCE has long been considered a period of significant social transformations throughout Europe and the Mediterranean. With increasingly robust chronologies and larger datasets, trajectories of the rise and fall of societies are an important focus of research in Southeastern Europe. The abandonment of long-lived tell settlements, for example, is indicative of the social transformations taking place in the region. This phenomenon has been associated with societal collapse by some researchers. In contrast, the appearance of the Late Bronze Age mega sites reveals resurgent prosperity. Rapid changes around 1200 BCE ended complex societies along the Danube and adjacent Balkan areas. These dramatic changes in settlement patterns have biased our knowledge of the 2nd millennium BCE, particularly when concentrated settlement systems are studied in spatial and temporal isolation. To better understand these trajectories, we must explore the wider social landscapes of these prominent multi-settlement entities together with 1) alternative phenomena of dispersed / less-stable settlement systems and 2) other made-places from cemeteries to hoards. This session aims to critically evaluate social transformations of the 2nd millennium BCE Middle and Lower Danube hinterlands in a nuanced manner that addresses the impact of connections through time and across the diverse, contemporary societies that shaped these landscapes. We call for contributions that shed new light on transformations of settlement patterns and land use, on changes in patterns of mobility, nutrition, infectious diseases, socio-political interactions between larger and smaller-scale settlement networks, management of and responses to societal-scale crises.

CONTRIBUTION ABSTRACTS

859. NO FANCY TITLE, WE DO SERIOUS CHRONOLOGY. RADIOCARBON DATING OF THE BRONZE AGE IN THE BALKANS

Contribution format: Oral  
Contribution authors: Maja Gori (National Research Council of Italy) – Barry Molloy (University of Dublin) – Marc Vander Linden (Bournemouth University)

The third and second millennia BCE in Europe were particularly pivotal in the long-term history of the continent, from major population turnover phenomena to the emergence of new and long-lived forms of social complexity. The prehistory of southeast Europe is one of the most diverse on the continent in terms of societal configurations, landscapes and climates. In the last decades, a relatively large number of radiocarbon dates has been produced for this area, even if unevenly distributed spatially and temporally. However, these data have been mostly used to define phenomena or metalwork and ceramic typo-chronologies at local to small-regional scales. Their potential for understanding wide-ranging cultural trajectories, the emergence, end of, or transition between social phenomena as well as relationships between neighbouring and more distant areas remained underdeveloped. In this paper, we present the first results of a project that has systematically gathered and analysed all available 14C dates for the timespan 3000-800 BCE in SE Europe. The geographic area covered is expansive, encompassing a present-day Slovakia, Hungary, Slovenia, Croatia, Bosnia and Herzegovina, Serbia, western Romania, western Bulgaria, Albania, Kosovo, N. Macedonia and central to northern Greece. The 14C data have been used to generate a broader framework for a comparative archaeology of SE Europe in these formative millennia. Using these data, we explore long-term regional trends in the intensity of human activity in a comparative perspective in this presentation. By evaluating the articulation between macro-trends revealed and local relative chronological schema, we also tested the robustness of the boundaries of ceramic typo-chronology sequences commonly used as the backbone in local and regional archaeologies in this area. Together, these approaches are used to present new regional scale models for social developments in the third to early first millennia BCE.

1460. THE RISE AND FALL OF A REGIONAL POLITY: THE MAROS GROUP IN THE SECOND MILLENNIUM BC

Contribution format: Oral  
Contribution authors: Amy Nicodemus (University of Wisconsin-La Crosse) – John O’Shea (University of Michigan)

The second millennium BC in the Eastern Carpathian Basin is a time of dramatic social and cultural transformation. It sees the multiple, regionally coherent, cultural entities of the Early Bronze Age interlinking into an emergent macro-regional system (EMRS) of interaction and trade. After about five stable centuries, it then sees the complete collapse of that same system, with ramifications that reverberate throughout these regional polities, creating a chaotic transition into the earliest manifestations of the Late Bronze Age. Extensive new excavations and the proliferation of high precision 14C dates now allows us to view the nature of these social transformations at an unprecedented scale and time frame. Here we consider the trajectory of change and transformation at the scale of a single regional polity, the Maros Group of southeast Hungary, western Romania and northern Serbia. While Maros tell settlements are already known in the EBA, an explosive expansion of settlements and cemeteries is observed at the beginning of the MBA (conventionally 2000 BC). These include the de novo foundation of three major tell sites, Pecica Șanțul Mare in western Romania, Rabe Anka Siget in northern Serbia, and Klárafalva Hajdova in eastern Hungary. These tell sites, along with the contemporary Szőreg C cemetery at the Tisza-Maros confluence, emerge as major centers and nodes in the EMRS. The rapid rise and tumultuous collapse of these centers is a defining feature of the regional MBA, and the transition to the early LBA .

2145. FROM TELLS TO MEGA-FORTS: SOCIAL, POLITICAL AND ECONOMIC TRANSFORMATIONS DURING THE SECOND HALF OF THE 2ND MILLENNIUM BC IN E-HUNGARY

Contribution format: Oral  
Contribution authors: Vajk Szeverenyi (University of Miskolc) – Anna Priskin – Balázs Wieszner (Hungarian National Museum)

The second half of the second millennium BC in the Carpathian Basin witnessed multiple major transformations clearly visible in the changes observed in regional settlement patterns. Around ca. 1500 BC, tell settlements along the Danube and its tributaries previously occupied for centuries were abandoned, giving way to a more dispersed settlement pattern. This, in turn, was replaced around 1350 BC by a new pattern dominated by “mega-forts” in southeastern Hungary, surrounded by medium-sized fortified settlement and unfortified hamlets. Fortified settlements in other areas east of the Danube, however, are rare. This “fortified landscape” disappears again in eastern Hungary sometime after 1200 BC. The aim of our paper is to investigate other spheres of social and economic life – such as burial wealth, hoarding and food preparation and consumption practices – during the period between 1500 and 1100 BC to see if other changes correlate with the transformations observed in the settlement patterns. We seek to answer the question what kind of social, economic and political processes might be behind the observed large-scale transformations in Bronze Age society in eastern Hungary.

502. THE ORGANISATION OF DOMESTIC AND NON-DOMESTIC SPACE: THE TISZA SITE GROUP (1600-1200 BC) IN THE SOUTH PANNONIAN PLAIN

Contribution format: Oral  
Contribution authors: Dragan Jovanovic (City museum Vršac) – Caroline Bruyere – Barry Molloy (University College Dublin)

The Tisza Site Group and associated settlements form a cluster of 120+ settlements that share an exceptionally similar canon of spatial organisation in the south Pannonian Plain (1600/1550-1200 BC). Established in an area with much fewer known habitation sites during the preceding Middle Bronze Age, this system flourished for as much as four centuries as settlements arose to form a dense and closely linked network. The settlements have very large dimensions, ranging from a few hectares up to 200 hectares, with a large number falling into the range of 40-90 hectares. An important feature of these settlements from an archaeological perspective is that their extent and layout can be defined, in many cases with excellent resolution, using remote sensing. Comparing these aerial images with geophysical survey data and intensive pedestrian survey data, it has been possible to demonstrate that what we see from the air is highly reflective of the archaeology on the ground. On this basis, we have been able to define a tripartite division of space. The outer boundary of the site encloses an unbuilt space that in turn surrounds an inner space, sometimes enclosed, that contains multiple domestic spaces, and each of these domestic spaces in turn appears to have been home to multiple foci of domestic activity. This paper will explore how the organisation of space within these settlements is an allegory for the wider organisation of the society that built them. In turn, we argue that the sharing of the same organisational logic at over 120 settlements is indicative of a form of hitherto undiscussed social complexity in the Late Bronze Age Pannonian Plain. We introduce the term agro-agglomerate to define the ideology shaping the society behind the Tisza Site Group and argue this



represents an important form of complexity fully distinct from urban frameworks.

478. FROM THE MIDDLE BRONZE AGE TO THE LATE BRONZE AGE IN THE EASTERN HUNGARIAN PLAIN: CRISIS OR CONTINUITY?

**Contribution format:** Oral  
**Contribution authors:** Alexandra Gavan (Institut für Ur- und Frühgeschichte Universität zu Köln) – Marian Lie (Institute of Archaeology Iași, Romanian Academy) – Tobias Kienlin (Institut für Ur- und Frühgeschichte Universität zu Köln)

The transition from the Middle to the Late Bronze Age in the Great Hungarian Plain is marked by the end of tell settlements in the region. Although this phenomenon was previously perceived as a short-lived horizon linked to a historical event – namely the supposed invasion of the Tumulus Culture into the Carpathian Basin, it is now recognised that we are dealing with a long-term process in which individual tells were occupied and abandoned at different times. Not much is known about the settlement system characteristic of the first phase of the Late Bronze Age in the eastern part of the Great Hungarian Plain, while absolute dates associated with this horizon are very few. In this presentation we will discuss the available radiocarbon dates for the transition from the Middle to the Late Bronze Age in the eastern part of the Hungarian Plain and review the archaeological evidence from this period, with a focus on settlement sites. Special attention will be paid to the multi-component site of Toboliu in western Romania, where recent investigations have revealed a continuity of occupation from the Middle to the Late Bronze Age.

1050. EXCHANGE AND ENTANGLEMENT: INTERACTIONS BETWEEN THE TERRITORY OF BOHEMIA AND WESTERN HUNGARY IN THE EARLY 2ND MILLENIUM BC

**Contribution format:** Oral  
**Contribution authors:** Eszter Melis (Institute of Archaeology HUN-REN Research Centre for the Humanities) – Daniel Hlášek (Archeologický ústav AV ČR, Praha | Jihočeské muzeum, České Budějovice) – Kosová Michaela (Archeologický ústav AV ČR, Praha) – Nóra Szabó (Institute of Archaeology HUN-REN Research Centre for the Humanities) – Michal Ernée (Archeologický ústav AV ČR, Praha) – Attila Kreiter (Hungarian National Museum Public Collection Centre, National Institute of Archaeology) – Viktória Kiss (Institute of Archaeology HUN-REN Research Centre for the Humanities)

There is now no doubt that bronze metallurgy led to the mobility of people, and the spread of economic structures and social practices in the 2nd millennium BC in Europe. While scientific methods of the so-called “third science revolution” have advanced our understanding of these processes, the investigation of material culture remains central to studying connectivity from an archaeological perspective. Within this framework, our research examines the relationship between the territory of Western Hungary and Bohemia between 2000 and 1500 BC. During this period, Bohemia was largely associated with the Únětice complex, while Transdanubian Encrusted Pottery dominated material culture in Western Hungary. Despite these cultural differences, both regions—linked by the Danube drainage system—relied on major copper sources from the Hron/Garam Valley (Slovakia) and the Alps (modern Austria and northern Italy), as well as on the assumed exploitation of tin deposits in the Czech-Saxon Ore Mountains, which were essential for bronze alloying. Our study focuses on the presence of foreign pottery and metal types, with particular attention to their analogies and degrees of similarity among the finds from these two regions. By analysing these artefacts within their most accurate contexts and dating, we aim to outline the spatial and temporal distribution patterns of foreign objects. This approach helps identify potential hubs of interaction and reveal the dynamics, main directions, and changes in interregional connections. Beyond exploring long-distance contacts in Central Europe during the 2nd millennium BC, our analysis contributes to understanding the social transformations that occurred between 1700 and 1500 BC within the Únětice complex and at its southern frontiers.

977. INVESTIGATION OF THE MBA-LBA TRANSITION THROUGH CERAMIC TECHNOLOGY AT THE BORSOD-PLAIN REGION (NORTHEASTERN HUNGARY)

**Contribution format:** Oral  
**Contribution authors:** Ákos Mengyán (Hungarian National Museum, Archeometry Laboratory | University of Miskolc, Institute of Exploration Geosciences) – Klára P. Fischl (HUN-REN Research Centre for the Humanities, Institute of Archaeology) – Ferenc Kristály (University of Miskolc, Institute of Exploration Geosciences)

The chaîne opératoire approach of pottery can allow us to investigate the variability of techniques used to produce a vessel, and to evaluate the technological choices and traditions in pottery production. The comparison

of technological choices in time and space permits to identify the continuity or change in pottery making traditions within and between communities. Therefore, this approach can be effective to investigate the connections between societies or cultural groups. In the Carpathian Basin, the Middle to Late Bronze Age transition had several interpretations in the last decades, including but not limited to climate change and migration. Our aim is to investigate this MBA-LBA transition in Northeastern Hungary, through the ceramic technology of the key cultural groups of the Borsod-Plain region. These are the Middle Bronze Age Füzesabony and Late Hatvan (ca. 2000/1900–1600/1550 BC), and the Late Bronze Age Tumulus and Piliny cultures and pre-Gáva style pottery (ca. 1600/1550–1100 BC). In order to evaluate this topic, we analysed three Middle Bronze Age sites, Bogács-Pázsagpuszta a Late Hatvan/Füzesabony tell-like settlement, Novaj-Földvár a Füzesabony tell settlement and Vatta-Telek-oldal-dűlő a Füzesabony/Late Hatvan cemetery and three Late Bronze Age sites, Maklár-Nagyrét, -Nagyrét II. and -Kospérium, involving Tumulus culture cemeteries, and settlements with Piliny and Pre-Gáva pottery. In this presentation, we analyse the raw materials and tempering, using thin section petrography and polarizing microscopy, and compare them to detect continuity or differences between the MBA and LBA ceramic technologies. The application of this method can help us to better understand the social dynamics of this period.

2400. THE EVOLUTION OF SETTLEMENT PATTERNS: MIDDLE AND LATE BRONZE AGES IN SOUTHERN CARPATHIAN BASIN

**Contribution format:** Oral  
**Contribution authors:** Hrvoje Kalafatic (Institute of Archaeology Zagreb) – Rajna Šošić-Klindžić (Faculty of Humanities and Social Sciences, University of Zagreb) – Bartul Šiljeg (Institute of Archaeology Zagreb)

The Middle and Late Bronze Ages in Southeastern Europe, particularly in the Danube and Balkan regions, marked significant social and cultural shifts, with settlement patterns evolving in response to resource availability and strategic locations. The Late Bronze Age saw the emergence of foundational settlement dynamics, with new settlements often established near fertile lands and key communication routes, providing optimal locations for agriculture and trade. Archaeological surveys and excavations, particularly in the Sava and Drava River Basins, have uncovered a wealth of new settlement sites, offering insights into broader patterns of human occupation. During the Late Bronze Age, the Barice-Gređani group expanded their territory, leaving behind well-documented archaeological records, including settlements and cemeteries. In Eastern Croatia, the Belegiš/Cručeni cultural group interacted with the Barice-Gređani group, marking the western boundary of Belegiš expansion and highlighting the dynamic exchange between these cultures. However, this period also marked the end of many settlements, with abandonment possibly tied to environmental changes or social transformations. Recent archaeological research and extensive rescue excavations have provided a clearer picture of settlement dynamics, revealing both the resilience and eventual decline of communities. These insights allow for a more comprehensive understanding of settlement development and abandonment during both the Middle and Late Bronze Ages in this region.

1233. TISZAFÜRED: A UNIQUE MICROREGION FOR UNDERSTANDING THE TRANSFORMATIONS OF THE 2ND MILLENNIUM BCE

**Contribution format:** Oral  
**Contribution authors:** Klara Pusztaine Fischl (HUN-REN Research Centre for the Humanities Institute of Archaeology) – Kristóf Fülöp – László Gucsi (HUN-REN Research Centre for the Humanities Institut of Archaeology) – János Dani (University of Szeged Institute of History Department of Archeology) – Tamás Hajdu (Eötvös Lóránd University Institute of Biology Department of Biological Antropology)

The transformations in the Carpathian Basin during the mid-2nd millennium BCE can be examined on multiple levels. One of the most striking is the changing of settlement patterns, which is characterized, among others, by the abandonment of long-lived tell settlements. At the same time, changes can be observed in the material culture, burial customs, and, based on the latest data, diets as well. All these factors led to the emergence of a new socio-cultural entity known as the Tumulus Culture. These changes – marked in Hungarian research as the transition between the Middle and Late Bronze Age – can be analysed at different levels. However, there are only a few archaeological sites where the full range of these transformations can be studied. One such area is the Tiszafüred microregion. The tell settlement of Ásotthalom, located next to the former Tisza riverbed, along with its surrounding cemeteries, provides an exceptional basis for a better understanding of the changes of the period. Among these cemeteries, Majoroshalom stands out. In this cemetery, adjacent to the outer settlement of the Ásotthalom tell site, more than 600 Füzesabony culture and 365 Tumulus culture burials were discovered between 1961 and 1972 by Zsolt Csalog and Tibor Kovács. In this presentation, we introduce our research project “Changes in Life and Death: Bronze Age Communities in Tiszafüred,” which started in 2024. Besides presenting the first results, we integrate more than 150 years of research on the Tiszafüred microregion into the complex issue of social transformations in the 2nd millennium BCE.



92. MAKLÁR – A MICROREGIONAL PERSPECTIVE ON THE MBA / LBA TRANSITION IN NORTHEASTERN HUNGARY

**Contribution format:** Oral  
**Contribution authors:** Tobias Kienlin (Department of Prehistoric Archaeology, University of Cologne) – Ákos Mengyán (Hungarian National Museum, Budapest | University of Miskolc, Institute of Exploration Geosciences) – Klára Fischl (HUN-REN Research Centre for the Humanities, Institute of Archaeology)

The end of MBA tell settlement in the Carpathian Basin has long fascinated archaeological research, with explanations ranging from traditional historicising narratives, the Tumulus invasion, to climate change, more or less globally conceived. With the current rise of interest in subsequent LBA ‘mega-sites’ we tend to perceive two apparently distinct pathways to social complexity: From tell-living with its characteristic emphasis on ancestry, but also widely associated with the rise of BA elites, to the much larger LBA fortified sites, run by a ruling class in control of distinct political territories, drawing on international trade routes – and sometimes falling victim to endemic Bronze Age warfare. This juxtaposition of EBA/MBA and LBA social formations, with their distinct settlement patterns and organisation of social space, is somewhat essentialising. It must neither conceal variability on either side of the assumed divide, nor often our fundamental lack of data in trying to understand how social life unfolded on either side. On a very basic level this also concerns our chronologies, for the abandonment of tells is a horizon rather than a distinct event, and in each microregion we may face differences in the chronological relationship between tells and post-tell LBA phenomena, be they graves or settlements – from overlap to clear distance between them. In this paper, we therefore turn to a specific microregion, the municipality of Maklár in northeastern Hungary, combining the evidence from two recent radiocarbon dating projects focusing on the MBA tell of Baglyashalom, and the LBA cemeteries and settlements of Koszépérium, Nagyrét I and II, in order to contribute to a better understanding of the end of ‘tell-living’ and its relation to subsequent LBA ways of life and death in this region.

2107. UNRAVELING CHRONOLOGY: A MULTIVARIATE STATISTICAL APPROACH TO LATE BRONZE AGE POTTERY FROM ŞAGU (ARAD COUNTY), ROMANIA

**Contribution format:** Oral  
**Contribution authors:** Sofia Bertea (Babes-Bolyai University)

The settlement at Şagu-Site A1\_1, Arad County, excavated in 2010 because of upcoming Timișoara-Nădlac highway constructions, revealed 306 Late Bronze Age features framing between 16th and 13th century BC, based on the existing 14C data. This period is one full of changes that are not obvious only through settlement and funerary choices, but also ceramic style. This study explores the internal chronology of the settlement through a comparative approach integrating multivariate statistical analysis of pottery’s morphological aspects and radiocarbon dating. Correspondence analysis and seriation were applied to ceramic assemblages to identify patterns of change in ceramic fashion, that can be observed over time, and then integrated in the absolute chronology of the site. The correlation between these datasets contributes to refining the site’s chronology and offers a broader perspective on Late Bronze Age ceramic production and use in the region. These preliminary findings underline the potential of integrating statistical and absolute dating methods in archaeological research, enhancing our understanding of settlement dynamics and material culture development.

521. GENOMIC STABILITY AND TRANSFORMATIONS IN PREHISTORIC TRANSYLVANIA

**Contribution format:** Oral  
**Contribution authors:** Adam Rohrlach (Department of Archaeogenetics, Max Planck Institute for Evolutionary Anthropology) – Mikkel Nørtoft (Section for Prehistoric Archaeology, Saxo Institute, University of Copenhagen) – Sandra Penske (Department of Archaeogenetics, Max Planck Institute for Evolutionary Anthropology) – Ainash Childebayeva (Department of Anthropology, University of Texas at Austin | Department of Archaeogenetics, Max Planck Institute for Evolutionary Anthropology) – Alissa Mittnik – Johannes Krause (Department of Archaeogenetics, Max Planck Institute for Evolutionary Anthropology) – Philipp Stockhammer (Ludwig Maximilian University Munich | Department of Archaeogenetics, Max Planck Institute for Evolutionary Anthropology) – Wolfgang Haak (Department of Archaeogenetics, Max Planck Institute for Evolutionary Anthropology)

Since prehistory, Transylvania has long been a landscape characterised by rich natural resources, fertile farming land and relative protection from the surrounding Carpathian and Apuseni Mountains. However, the genetic history of the people that have inhabited Transylvania is poorly understood, with the archaeological record

previously represented by only a few individuals. Conversely, the history of the regions in southeastern Europe surrounding Transylvania are well studied, and attest to dramatic genetic turnovers accompanying the change from a hunter-gatherer to a sedentary agricultural lifestyle, followed by the arrival of steppe-related ancestry with the expansion of pastoralist societies from the steppe zone east of the Carpathian Mountains. In this study we report archaeogenetic results from individuals from Transylvania and the surrounding regions in Romania, from a period spanning the Neolithic to the Late Bronze Age. We report a surprising level of genetic continuity within Transylvania, with little evidence for an influx of steppe-related ancestry into individuals associated with the main cultural groups until the Middle to Late Bronze Age. We also find evidence for Yamnaya and Yamnaya-related groups dating to the Early Bronze Age who, however, appear to have left only subtle genetic footprints in the region. In stark contrast, steppe-related ancestry is only widely introduced with the Late Bronze Age Noua groups. In summary, we find that while Transylvania was at times a melting pot of genetic profiles, the region still maintained an ongoing thread of a continuous genetic legacy during the Copper Age and for much of the Bronze Age.

2308. THE INHABITANTS OF EUROPE’S MEGAFORTS IN CONTEXT: NEW POPULATION GENETIC RESEARCH IN THE SOUTHERN PANNONIAN PLAIN

**Contribution format:** Oral  
**Contribution authors:** Miren Iraeta Orbegozo (University of Lausanne) – Anna-Kjær Knudsen (Globe Institute, University of Copenhagen, Copenhagen, Denmark) – Linda Fibiger (School of History, Classics & Archaeology, University of Edinburgh) – Dorothea Mylopotamitaki (CIRB, Collège de France, Université PSL) – Barry Molloy (School of Archaeology, University College Dublin) – Hannes Schroeder (Globe Institute, University of Copenhagen, Copenhagen, Denmark)

The rise of a new settlement network in the 15th century BCE in the southern Carpathian Basin termed the lower Pannonian network represented a dramatic change in the social dynamics of the region, with population expansion driving the establishment of numerous settlements in previously underpopulated areas. This network included several megaforts - sites of unprecedented scale and complexity. It remains unclear whether this massive growth in settlement numbers and scale was driven by internal demographic changes, such as shifts in family structures and mortality rates, or by external immigration. Cremation was the dominant burial rite, though inhumation burial is also known in cemeteries associated with these fortified sites and at other cemeteries in their hinterlands associated with different ceramic traditions. This provides a limited, but important, corpus of material suited to genetic analysis. The lower Pannonian network emerged following the collapse of the preceding socio-political model of the Middle Bronze Age ca. 1550 BC, centred around tells and tell-like mounds. After its collapse ca. 1200 BC, there was a period of low-density occupation in this same area, until the emergence of a new horizon of smaller enclosed sites between 1000 and 900 BC. To contextualise the rise and fall of this network, we have gathered genetic data from these three horizons and from neighbouring areas, which are co-analysed with published data. We discuss newly generated genomic data from 80 individuals from 22 archaeological sites in the Pannonian Plain and Dinaric Alps. Preliminary results are used to characterise population continuity and diversity, kinship structures, and shifts in societal organization across key transitions, including the collapse of Middle Bronze Age tell-centred networks, the rise and fall of the megafort horizon, and the transition into the Early Iron Age.

1721. MOBILITY WITHIN LATE BRONZE AGE COMMUNITIES OF THE SOUTHERN PANNONIAN PLAIN: STRONTIUM ISOTOPE PERSPECTIVES

**Contribution format:** Oral  
**Contribution authors:** Jason Laffoon (Leiden University) – Barr. Molloy (University College Dublin) – Cheryl Makarewicz (Ancient Stable Isotope Laboratory, University of Kiel) – Petrus Le Roux (University of Cape Town) – Linda Fibiger (University of Edinburgh)

During the 16th century BC, a new settlement network developed in the southern Pannonian Plain that has been termed the Tisza Site Group (TSG). This occupied a landscape that had seen low-density habitation during the preceding centuries of the Middle Bronze Age, when tell-centred communities across the plain hand thrived. A remarkable feature of the TSG settlements it that they shared highly similar organisational features, indicating they followed a common template for how habitation and landscape use intersected. In turn, these new settlements were very densely located within the landscape, with few lying greater than 5km from their nearest neighbour. There are hierarchical divisions of size that correlate with complexity and density of activity within, indicating that not all settlements were created equally and that they served different roles in this network. It has been argued that the network in turn operated as anchor points in a system that exploited the wider landscape extensively, potentially segueing to pockets of more intensive use in and around settlements. We envisage them as having been translocal – that is, individual settlements did not constitute bounded social entities in themselves, such that people moved between settlements. Such movement may have ranged from seasonal transhumance



to marriage to fostering. Mobility, in such a model, would have been a characteristic feature of communities. Contemporary to the emergence of the TSG, numerous cremation cemeteries were established. To the west of the TSG other social configurations are hinted at by differences in pottery and mortuary conventions. Samples of bone from cremation and inhumation burials were analysed for strontium isotope ratios. A baseline of modern plant samples were also analysed for context. This paper explores the evidence for mobility as revealed through strontium isotope ratios and evaluates how this helps us better understand conventions of TSG and surrounding communities.

**872. STABLE ISOTOPE ANALYSIS FROM CEREAL AND ANIMAL BONES SIGNAL AGRICULTURAL CHANGES ON THE GREAT HUNGARIAN PLAIN DURING THE BRONZE AGE**

**Contribution format:** Oral  
**Contribution authors:** Paul R. Duffy (Kiel University) – Kelly Reed (Oxford Brookes University) – László Bartosiewicz (Stockholm University) – Györgyi Parditka (University of Michigan) – Pál Raczky (Eötvös Loránd University) – Cheryl Makarewicz (Kiel University)

Archaeologists often identify changes in agricultural production, particularly the advent of plough use, as a transformative development in village societies, marking the transition toward more unequal systems and the potential creation of artificial land scarcity. In Eastern Europe, the Middle Bronze Age of the Great Hungarian Plain is frequently cited as a pivotal period when hierarchical systems began to emerge. This raises the question: how did these groups organize agricultural production? Did they follow the labour-intensive strategies of their Neolithic predecessors, or did they adopt the extensification and plough-based methods seen in the Bronze Age Mediterranean and Near East? This paper compares stable isotopic data from cereals grown at a Late Neolithic tell site, predating the introduction of plough agriculture, with cereals from two Middle Bronze Age sites within the Körös region of eastern Hungary. We analyze an extensive inter-household archaeobotanical dataset from the Late Neolithic site of Berettyóújfalu-Herpály and compare it with cereal data from the Middle Bronze Age tell site of Vésztő-Mágor and the nearby farmstead of Tarhos-Gyepesi-Átkelő. Our analysis focuses on the growing conditions of cereals from these three sites and incorporates stable isotope data from animal bones at the Bronze Age sites to examine differences in household herding economies. This approach provides insights into the social organization of these communities and the potential impact of agricultural practices on their trajectories.

**687. NEW ARCHAEOGENETIC INSIGHTS INTO THE ALBANIAN BRONZE AND IRON AGE**

**Contribution format:** Oral  
**Contribution authors:** Xiaowen Jia (Ludwig Maximilian University Munich | Max Planck Institute for Evolutionary Anthropology | Max Planck Harvard Research Center for the Archaeoscience of the Ancient Mediterranean (MHAAM)) – Eirini Skourtanioti (Max Planck Institute for Evolutionary Anthropology | Max Planck Harvard Research Center for the Archaeoscience of the Ancient Mediterranean (MHAAM)) – Daniela Heilmann (Ludwig Maximilian University Munich | German Archaeological Institute) – Lorenc Bejko – Maria Amore – Skender Aliu – Iris Pojani (University of Tirana) – Johannes Krause (Max Planck Institute for Evolutionary Anthropology | Max Planck Harvard Research Center for the Archaeoscience of the Ancient Mediterranean (MHAAM)) – Philipp Stockhammer (Ludwig Maximilian University Munich | Max Planck Institute for Evolutionary Anthropology | Max Planck Harvard Research Center for the Archaeoscience of the Ancient Mediterranean (MHAAM)) – Harald Ringbauer (Max Planck Institute for Evolutionary Anthropology | Max Planck Harvard Research Center for the Archaeoscience of the Ancient Mediterranean (MHAAM))

Situated at the interface of the Aegean and the Adriatic in southeastern Albania, the Kamenice Tumulus functioned predominantly as an inhumation burial site from 1700 to 500 BCE. This stands in contrast to the prevailing cremation rituals observed in Central Europe during the same period, which have typically impeded insights into archaeogenetic progressions. In this work, we generated genome-wide SNP data for 230 individuals buried in Kamenice over its complete historical span, alongside 19 Iron Age individuals from North Macedonia and 2 Late Bronze Age individuals from southwestern Bulgaria. Our comprehensive dataset provides the unique and first possibility for insights into, on the one hand, genetic continuities and changes of Late Bronze Age and Iron Age Albania; on the other hand, the function and meaning of tumuli in prehistoric Europe. Different societal transformations identified in the wider region are associated with a genetically stable and genealogically continuous population at Kamenice. Our results indicate that the local population maintained a distinct genetic profile while participating in a regional kinship network extending over 300 kilometers, as demonstrated through identified biological relatedness up to the 10th degree. Moreover, for the first time, we found evidence linking a partial turnover of male lineages around 750 BCE in a patrilineal society to a substantial shift in the structure and material

symbols of the tumulus.

**108 ADAPTATIONS AND RESPONSES TO CLIMATE CHANGE ON ISLANDS AND IN COASTAL AREAS AROUND THE MEDITERRANEAN**

**Session theme:** 7. Climate Change in the Past and Present  
**Session format:** Session with keynote presentation  
**Session keywords:** Islands , Mediterranean , climate , migration , water , anthropogenic- hazards  
**Session organisers:** Erica Angliker (Unicamp) – Tais Pagoto Bélo (University of São Paulo)

**SESSION ABSTRACT**

As environmental concerns become increasingly urgent, archaeologists are looking at how ancient societies perceived and interacted with the natural world and the impact of the environment on these societies. In this context, islands and coastal areas, where the interactions between the environment and communities are especially dynamic, are of particular interest. Given their geographical position, these areas tend to be more exposed than those inland to both natural and anthropogenic hazards. Thus, the effects of demographic overgrowth, variations in water level and supplies, the accumulation of debris, and the introduction of new animal and plant species are strongly felt in coastal and island environments. To address these issues, the proposed section will examine changes in island and coastal ecosystems and the responses of ancient communities in the Mediterranean region from the Bronze Age to Late Antiquity. The papers will address questions relating to ancient responses to environmental issues as well as modern archaeological perceptions of climate change and strategies for dealing with it, in particular.

- How did ancient people respond to changes in climate? What actions did they take to attenuate the impact of these changes, and how effective were they.
- How did ancient island and coastal communities manage their water supplies and other natural resources?
- Did climate change force ancient populations to migrate.
- How can climate change in antiquity be observed and assessed.
- How do archaeologists preserve and record archaeological data and materials related to ancient environments so that they remain unaffected by climate change and available to future generations?
- How can ancient practices rooted in Indigenous traditional ecological knowledge inform the responses to climatic changes and solutions for managing the threats that these changes pose today?

**CONTRIBUTION ABSTRACTS**

**877. ISLANDS, CLIMATE CHANGE & RESILIENCE**

**Contribution format:** Oral  
**Contribution authors:** Rebecca Sweetman (British School at Athens | University of St Andrews)

It has long been recognised that islands are particularly at risk to climate change; some islands are even taking the difficult decisions to prepare for permanent evacuation including making relocation agreements (Tuvalu and Kiribati). Although often treated as a microcosm for understanding the broader ramifications of climate change, the focus has primarily been on modern issues and challenges while investing in climate resilience through land management, community awareness and building food security. All of these methods of dealing with climate change are visible from an island perspective in the past through the complex and changing relationships islands had internally and externally, evidenced through changing settlement patterns, economy, mobility and networks. The aim here is to show how a diachronic analysis of the archaeology of Mediterranean island spaces can highlight the lived experience of island life as resilient and dynamic thus contributing to a wider understanding of the impact of climate change in contemporary society.

**892. MARGINALIZED COMMUNITIES IN COASTAL MICRO-ENVIRONMENTS OF LATE PREHISTORIC ITALY: PROBLEMS AND PERSPECTIVES**

**Contribution format:** Oral  
**Contribution authors:** Rafael Scopacasa (University of São Paulo) – Elisa Perego (University College London)

The late second and first millennia BC were periods of unprecedented shifts in human-environment interactions in the Italian peninsula, an area characterized by extended coastal and insular environments. Urbanization, increasing social complexity and Rome’s expansion were enmeshed with socio-environmental transformations, including agro-pastoral expansion, deforestation, as well as changing diets and pathological profiles of populations. Coastal, riverine and lagoon environments were affected by such variations. In archaeology, the focus has



usually been on the élites who supposedly drove these developments from socioeconomic powerhouses, such as the cities of central Tyrrhenian Italy. This has sidelined marginalized groups inhabiting agriculturally peripheral and/or ecologically fragile micro-environments. We discuss theoretical and methodological frameworks for exploring the agency of potentially marginalized communities in the face of climatic and environmental instability in late prehistoric and early Roman Italy. We focus on coastal, riverine and lagoon environments with intricate hydrological balances and fine margins of climatic stability, such as the flood-prone plains around the Po delta in the northeast, and drought-sensitive karst plateaus in Puglia in the south. We, therefore, explore how a microscale approach to archaeological and environmental data can afford a higher-resolution picture of marginalized experiences of climatic and environmental stress in the deep past, while increasing our understanding of the socioecological dimension of inequality in antiquity.

1866. GO WITH THE FLOW. THE ROLE OF WATER IN THE NURAGIC LANDSCAPE OF LBA-EIA SARDINIA

**Contribution format:** Oral  
**Contribution authors:** Yvonne Schmied (Institute of Archaeological Studies – Ruhr-University Bochum)

The challenges posed by contemporary climate change suggest that even in prehistoric times, environmental changes were of extraordinary importance to societies and influenced their interaction with the surrounding landscape. The role of water on a Mediterranean island, such as Sardinia, with its so-called ‘water temples’ of the Late Bronze Age and Early Iron Age, offers the potential for a deeper understanding of past societies. The emergence of these buildings – whether as individual constructions such as pozzi sacri or as sanctuaries comprising multiple structures – goes hand in hand with other architectural forms, including complex nuraghi, megara, rotundas and meeting huts, which are interpreted as indicators of social transformations. While research has traditionally emphasized a technological development, often drawing upon Eastern influences, the concept of a ‘water cult’ has emerged as a prominent interpretative framework. However, mounting evidence points to the influence of climatic shifts, increasing exchange processes and a rising population during this period. These had an impact on Nuragic society and influenced the way it dealt with water and the surrounding landscape. Nonetheless, these aspects have not yet been fully taken into account in the study of the ‘water temples’. Consequently, the present study – on the island of Sant’Antioco – proposes an integrated approach, combining a GIS- and prospection-based survey of Sardinia’s water resources with a landscape archaeological perspective. This comprehensive methodology focuses on the human-water relationship, particularly in relation to the Nuragic landscape, thereby seeking a more nuanced and holistic understanding of the socio-environmental dynamics of the region.

2263. THE CHALLENGES OF THE HERITAGE DESCRIPTOR IN ENVIRONMENTAL IMPACT STUDIES IN PORTUGAL

**Contribution format:** Oral  
**Contribution authors:** Vanessa Antunes (Centro de Geociências . Universidade Autónoma de Lisboa | Instituto Politécnico de Tomar | Património Cultural IP | ERA Arqueologia | Centro de Geociências)

Portugal has a rich history, influenced by various civilizations over the centuries. Its vast archaeological heritage reflects this cultural evolution. With its varied geography, the country favors the preservation of historical remains, but faces challenges in their protection and management. Despite not being bathed by the Mediterranean, Portugal is considered a Mediterranean country due to its climate and geographical proximity, which influences the culture and preservation of archaeological heritage. However, the management of this heritage faces challenges, especially in the identification and protection of remains. Environmental policy has been fundamental, promoting legislation to minimize impacts and improve preservation techniques. The implementation of specific legislation has boosted understanding of archaeological heritag. in Portugal. The processes of minimizing impacts make it possible to obtain valuable information about remains that, without this intervention, could remain hidden or be destroyed by construction. The archaeological heritage management model in Portugal has proved ineffective in the early identification of remains, which are often damaged during construction. Archaeologists point out flaws in Environmental Impact Assessments (EIA), which identify heritage impediments late, after projects have begun. Despite legislative advances and greater scientific rigor, gaps persist in the management of archaeological heritage. Obtaining data in the field is made difficult by dense vegetation, rugged terrain and limited access, compromising the prior identification of remains. Remote sensing, which has been used for years in Europe to collect data without direct contact with remains, is beginning to gain prominence in Portugal with official support. This technology has the potential to transform the management of archaeological heritage in EIAs. Remote sensing is an opportunity to overcome limitations in the identification of archaeological remains. Its integration into EIAs improves the preservation of cultural heritage. Combined with innovative practices and effective policies, it ensures a balance between development and protection, guaranteeing a sustainable legacy.

2356. SAFEGUARDING ARCHAEOLOGICAL COASTAL HERITAGE: REMOTE SENSING TECHNOLOGIES TO MINIMISE ENVIRONMENTAL AND HERITAGE IMPACTS

**Contribution format:** Poster  
**Contribution authors:** Vanessa Antunes (Centro de Geociências | Universidade Autónoma de Lisboa | Instituto Politécnico de Tomar | Património Cultural IP | ERA Arqueologia | Centro de Geociências)

The preservation of coastal archaeological heritage faces threats due to climate change, especially rising sea levels, coastal erosion and extreme weather events. Urban sprawl and tourism are intensifying the pressure. Against this backdrop, it is essential to adopt new protection strategies. Remote sensing has emerged as a fundamental tool, allowing sites to be mapped and monitore. without the need for invasive interventions. Although it is already widely used in various parts of the world, its application in Portugal is still minimal. Portugal has a long Atlantic coastline and is often considered Mediterranean due to its climat. and proximity to the Mediterranean Sea. Its largest cities lead to high population density, landscape changes, and resource pressure. Technologies such as LiDAR, aerial and satellite images make it possible to continuously monitor coastal dynamics and identify threats before they cause irreversible damage to heritage. The combination of these technologies is essential for heritage preservation, enabling detailed digital models, facilitating the analysis of the archaeological landscape and the recording of site. before they suffer impacts. As they are non-invasive methods, they reduce the risk of damage to sites and provide fast and accurate coverage of large areas, increasing efficiency in cultural heritage management. Methodological shortcomings in the early detection of archaeological remains, aggravated by the lack of multidisciplinary teams, result in identification errors and data loss. The complexity of the territory, combined with a lack of investment, makes it difficult to systematically implement these methodologies in the study and preservation of coastal archaeological heritage. However, the growing threat from climate change, coastal erosion, and human pressure makes adopting innovative strategies essential for anticipating risks and safeguarding heritage. Strengthening cooperation between research institutions, government bodies, and remote sensing specialists could represent a significant advance in protecting national archaeological sites.

109 VOICES OF THE PAST, HANDS OF THE PRESENT: COLLABORATIVE PATHWAYS IN ARCHAEOLOGY AND HERITAGE INTERPRETATION

**Session theme:** 4. De nobis fabula narratur: archaeological practice and a profession in flux  
**Session format:** Regular session  
**Session keywords:** Community Engagement, Participatory Archaeology, Heritage Interpretation, Co-created Narratives, Sustainable Heritage Management  
**Session organisers:** Giuseppe Pace (National Research Council - Institute for Research on Innovation and Services for Development) – Szilvia Fábíán (Hungarian National Museum, National Institute of Archaeology) – Marko Mele (Universalmuseum Joanneum)

SESSION ABSTRACT

In recent years, archaeology and heritage interpretation have increasingly emphasized the role of community engagement in exploring and narrating the past. Drawing on insights from the Erasmus Plus project “EMpowering landscapes with Participatory Approaches to Heritage interpretation Skills (EMPATHS),” this session invites participants to reflect on how archaeological practice can become more inclusive, embracing diverse community perspectives. By actively involving local voices in archaeological and interpretative processes, we can co-create narratives that are more dynamic, representative, and impactful for broader audiences. This session aims to explore innovative methodologies and frameworks for participatory archaeology, focusing on case studies where community involvement has enriched both archaeological practice and heritage interpretation. Key topics include the creation of shared narratives, collaborative decision-making, and approaches to bridge gaps between academic researchers and community knowledge holders. Participants are also encouraged to discuss the complexities of balancing differing perspectives on heritage value, managing expectations, and addressing ethical considerations in collaborative work. Through examining community-led excavations, interpretive planning, and digital storytelling, this session will explore how engaging communities as active partners can support sustainable heritage management, foster local stewardship, and enrich archaeological narratives with lived community values. Contributions are invited from archaeologists, heritage professionals, community leaders, and scholars interested in promoting inclusive practices and redefining heritage interpretation as a tool for dialogue, cultural identity, and community empowerment. By gathering insights and experiences from diverse projects, this session seeks to inspire new directions in collaborative heritage work that honour the complexities of the past while empowering communities to shape their own stories.



2098. FROM ONE STORY TO MANY: ADVANCING PARTICIPATORY APPROACHES IN STRATEGIC HERITAGE INTERPRETATION PLANNING

**Contribution format:** Oral  
**Contribution authors:** Carmen Granito (The Story Behind | Durham University | Interpret Europe) – Caterina De Vivo (The Story Behind) – Giuseppe Pace (National Research Council - Institute for Research on Innovation and Services for Development)

Heritage policies increasingly advocate for community engagement and participatory approaches in heritage interpretation (HI), marking a paradigm shift. The traditional conservationist perspective—where meanings and values are seen as inherent in heritage assets and interpreted solely by experts—is giving way to a people-centred approach that respects the diverse meanings and values different communities assign to heritage. Ideally, HI should result from collaboration among heritage experts, communities, and other stakeholders. However, the sector lags behind in adopting such approaches, particularly in EU countries. While the design of front-end interpretive services (e.g. guided tours, interpretive panels, guidebooks) has been gradually embracing conversational and multi-perspective practices, strategic-level HI—such as interpretation strategies and master-plans—remain predominantly expert-driven. Participatory processes at this level are still rare due to the absence of an established work practice for strategic participatory HI and limited skills, methodologies, and awareness among heritage professionals to effectively facilitate community involvement and collaborative decision-making. The Erasmus+ project EMpowering landscapes with Participatory Approaches To Heritage interpretation Skills (EMPATHS) seeks to address these gaps by developing a specific methodology and training resources to support heritage professionals in participatory HI planning and decision-making. This talk will introduce the EMPATHS project and present findings from its research phase, which included: (a) a review of community participation & stakeholder engagement practices in participatory HI, (b) a collection of models and methods in participation, through expert interviews from both the heritage sector and other fields, and (c) a focus on three selected pilots’ participatory practices. By integrating these diverse perspectives, EMPATHS identifies key success factors and best practices for fostering participation in strategic HI planning. Key takeaways will include practical guidance for heritage practitioners on adopting participatory models at the HI planning stage, overcoming common challenges, and integrating local perspectives into strategic interpretation plans.

2480. TALK WITH THE LOCALS – WAYS OF POSITIONING ARCHAEOLOGICAL HERITAGE ON THE AGENDA OF LOCAL COMMUNITIES IN STYRIA (AUSTRIA)

**Contribution format:** Oral  
**Contribution authors:** Marko Mele (Universalmuseum Joanneum)

Prehistoric archaeological heritage in Middle Europe has a very high quality but is often barely recognized or unrecognized even by the local inhabitants as a potential for territorial, social and economic development, since it is not always visible in plain sight. The visibility creates different challenges. First and foremost is certainly the management and maintenance of the heritage, followed by recognisability with a clear USP (unique selling point), the adequate use of resources for touristic promotion of the locations, and the missing identification of the local inhabitants with the route. Especially smaller communities often face tough competition with larger, more established tourist destinations. Limited resources and visibility can make it difficult for local communities to compete for the attention of tourists in the broader tourism market. Developing and managing cultural tourism requires specific knowledge and skills. Local communities may lack expertise in areas such as marketing and heritage preservation. This lack of know-how can impede their efforts to create and sustain successful cultural tourism initiatives. How to empower local stakeholders for the successful management of archaeological heritage? How to raise awareness with local stakeholders for the value of their heritage? How to make the archaeological heritage more visible and what do the local stakeholders need to be capable to develop their heritage more easily? By start to talk with the locals. How to start a conversation will be the starting point of the paper, followed by different outcomes of such conversation build on experiences in Styria (Austria). We will also try to present possible solutions and tools for the support of the local communities on their way to make their heritage “great again”.

1739. BUILDING SHARED NARRATIVES AND NEGOTIATING FOR SUSTAINABILITY: THE HELLENIST NECROPOLIS OF NAPLES

**Contribution format:** Oral  
**Contribution authors:** Giuseppe Pace – Gabriella Esposito – Luisa Fatigati (National Research Council - Institute for Research on Innovation and Services for Development)

Heritage interpretation (HI) is undergoing a paradigm shift from a traditional conservationist approach, where meanings and values are defined by experts, to a more inclusive, people-centred model. This shift recognises that

heritage significance is dynamic, shaped by diverse community perspectives and highlights the role of heritage interpreters as facilitators of dialogue, ensuring that multiple values and narratives contribute to a comprehensive strategy. The Hellenistic Necropolis of Naples, located in the Borgo dei Vergini, part of the Sanità district, exemplifies the challenges and opportunities of participatory HI. Despite its archaeological significance, the site remains fragmented, with different organisations managing separate sections without a cohesive governance model. This lack of coordination has hindered its integration into broader heritage policies and urban planning frameworks, limiting its visibility and sustainability. To address these issues, a participatory HI approach is essential. Drawing from Strategic Transition Practice (STP), a framework developed by the COST action Underground4value, which integrates cultural, social, and ecological dimensions into heritage management, this presentation explores how community-led engagement, storytelling, and interpretive planning must be a primary step for making archaeology sustainable. Based on the involvement of local stakeholders, intermediary institutions, and policymakers, STP can help negotiate shared narratives, define convergent visions, and facilitate inclusive planning and decision-making. The case of the Hellenistic Necropolis is only at the beginning but already underscores the need for a unified vision and a motivated public or research institution to act as a promoter and facilitator. By activating a dialogue and stimulating collaborative learning among heritage professionals, local communities, and governing bodies, planners can bridge fragmentation, ensuring the site’s preservation while enhancing its cultural and social relevance, and making participatory heritage a driver for democracy, social cohesion, and sustainable development, as well as positioning archaeological practice at the forefront of inclusive and resilient heritage management.

2176. THE METHODOLOGY OF MOLEHILL SURVEYS: AN INNOVATIVE APPROACH TO DATA COLLECTION AND COMMUNITY ENGAGEMENT

**Contribution format:** Oral  
**Contribution authors:** Frances Breen (Epiacum Heritage CIO | Solent Southampton University)

Epiacum Roman Fort is situated in a remote part of northern England. With it’s unique shape and proximity to Hadrian’s Wall, it has long provoked interest from the general public and archaeologists alike. A Scheduled Ancient Monument, Epiacum remains almost entirely unexcavated. The site tantalisingly hints at its story, but the absence of focused fieldwork, and especially excavation, means necessary detail is missing. However, by utilising the skills of an unusual visitor, we have been able to learn from this unique site: presenting, the humble mole. This presentation discusses the results of the hitherto unpublished Epiacum Molehill Project. Established in 2011, it made a virtue of the one resource abundant across this landscape- moles and their distinctive hills of upcast soil, many of which could be seen to contain artefacts. While not unheard of, this methodology is yet to be widely explored using a consistent framework and over continuous fieldwork seasons - as it has been at Epiacum. Five field seasons of molehill collection were conducted between 2011-2015 by community volunteers and local archaeological groups. The project was carried out again in 2023. By actively involving the local community and volunteers, Epiacum Heritage was able to co-produce a sustainable, innovative project that introduced new audiences to both archaeology and their own heritage. Providing an explanation of molehill collection methodology, I will explore the results of all six field seasons. This presentation will discuss the usefulness of molehill collection to evaluate archaeological sites, arguing that the technique offers considerable opportunity, especially for community-based projects with a high number of untrained volunteers. By embracing an inclusive approach to data collection and engaging with archaeologists and community members and volunteers, the history of Epiacum can be explored more fully and can provide a useful methodological framework for other projects.

785. HANDS ON CLAY: BRIDGING THE GAP BETWEEN CRAFTSWOMEN KNOWLEDGE AND ARCHAEOLOGICAL RESEARCH IN IRON AGE IBERIA

**Contribution format:** Oral  
**Contribution authors:** Jaime Vives-Ferrandiz Sanchez (Museu de Prehistòria de València) – Mireia López-Bertran (Universitat de València) – Patricia Varea-Milan (Independent scholar and artist)

We shall offer a methodological proposal to the study of Iron Age Iberian clay figurines based on the engagement of local potters. Clay figurines of the Iberian Iron Age (roughly 6th-1st centuries BC) are a relevant source of information for dealing with social aspects of the communities that created them. As in many other Mediterranean contexts, these objects have been studied from an iconographic and contextual perspective, but little emphasis has been on manufacturing techniques. The project TERRACOT has outlined a methodology for the study of these techniques that seriously considers the knowledge of local craftswomen to identify steps of the chaîne opératoire. After exhaustive documentation that includes drawing and high-resolution digital documentation techniques -such as 3D scanning and Reflectance Transformation Imaging (RTI) and X ray-, technical gestures based on operational chains and technological knowledge are identified by both archaeologists and the potter. The reproduction of a selection of figurines following the documented technical sequences is key to this methodology to test the hypotheses of manufacturing techniques based on the evidence observed. As a corollary, reproductions



provide us with teaching material for the dissemination of the results of the project and for heritage interpretation in local museums and sites. This project not only deals with a growing interest in craft practices in the past but also in the present, including the people involved in their creation. By embracing a methodology that entails collaborative decision-making with local potters as knowledge holders, the objective is not only to gain a better understanding of the social practices of the communities that produced and used clay figurines in the past, but also to build research alliances between academics and craftspeople. TERRACOT (PID2023-150349NBI00) is funded by the Spanish Ministry of Science, Innovation, and Universities.

1804. FROM THE BOTTOM-UP: A SMALL-SCALE COMMUNITY ARCHAEOLOGY PROJECT IN NE HUNGARY

**Contribution format:** Oral  
**Contribution authors:** Borbála Nyíri – Vera Majerik (Institute of Archaeology, Hungarian National Museum and Public Collection Centre)

In 2024, a small-scale community archaeology project was launched by the National Institute of Archaeology, under the auspices of the Hungarian National Museum and Public Collection Centre. The case study area is located in the Zemplén region, NE Hungary which has long been famous for its viniculture, while today it faces numerous socio-economic challenges typical of many rural communities. The aim of the project is, with the active participation of the local community - to identify, (re)assess and protect archaeological sites currently under threat by intensive cultivation, as well as the conservation of heritage monuments. The programme’s approach is developed from the bottom-up, primarily to pique the interest of children, and – by engaging the younger generations – it intends to draw in adult audiences too. Within this framework, the project is to create a platform for a dialogue between different segments of a fragmented local community, to foster local stewardship of archaeological sites and to encourage the active involvement of locals in developing a diverse historical narrative of their closer homeland. The paper will discuss the range of activities designed to achieve this by employing the methodologies of public archaeology while it considers the dissemination of local voices and the different channels it can sustainably utilise.

1900. INTERPRETING CULTURAL LANDSCAPES: GEOLOGY, URBAN REGENERATION, AND COMMUNITY ENGAGEMENT

**Contribution format:** Oral  
**Contribution authors:** Erlisiana Anzalone (National Research Council - IRISS)

Heritage interpretation is a powerful tool for strengthening local identity and fostering active community engagement. However, the role of geological landscapes in shaping cultural heritage narratives remains underexplored. Geological formations not only preserve the Earth’s history but have also historically influenced settlement patterns, urban morphologies, construction materials, and resource management strategies. Understanding and communicating these geological foundations can empower local communities, enhancing their connection to the land and fostering a sense of ownership over their cultural landscapes. This presentation explores how volcanic and travertine landscapes have shaped human interactions with the environment, guiding the development of urban centres, cultural practices, and architectural traditions. Case studies on the Campi Flegrei volcanic ecosystem and the travertine-rich areas of Todi, Spoleto, and Paestum illustrate how geological features have defined the physical character of these regions and contributed to their socio-economic development. By integrating geosciences and human sciences, this paper proposes community engagement strategies - such as participatory mapping, heritage walks, and co-created storytelling – for actively involving local communities in the interpretation of their geological and cultural pas and transform geological knowledge into a catalyst for place-making, fostering resilience, identity, and sustainable development. This approach underscores the potential of geology as a narrative and educational tool, bridging past and present while promoting community-led conservation efforts. Recognising and communicating the geological dimension of heritage can lead to community awareness and open to new participatory approach, balancing scientific knowledge with local perspectives, and finally ensuring more inclusive, dynamic, and locally relevant heritage experiences.

1338. WEAVING CUSTODIANSHIP THROUGH COMMUNITY ARCHEOLOGY AND CONSERVATION

**Contribution format:** Poster  
**Contribution authors:** Ana Pastor Pérez (Getty Conservation Institute) – Sígrið Remacha Acebrón (Universitat de Barcelona | Museu Nacional de Ciència i Tècnica de Catalunya) – Eva Perisé (Ajuntament de la Torre de Capdella | Museu Hidroelèctric de Capdella) – Júli. Servera Gumbau (Independent) – Mercè Gual Via (Museu Nacional de Ciència i Tècnica de Catalunya) – Violant Bonet (Independent) – Clara Masriera-Esquerri (Universitat Autònoma de Barcelona) – Sandra Luque (Ajuntament de la Torre de Capdella | Museu Hidroelèctric de Capdella) – Olivia Sokol (Universidad de Buenos Aires | Conicet)

Archaeology, as a field that connects diverse historical narratives to contemporary society, has a distinctive role in fostering a more inclusive and equitable future. Initiatives to incorporate local people in decision-making within this discipline are growing and demonstrate multiple procedures and methodologies: Excavation, documentation, conservation, and digitization. We argue that archaeological sites embodying diverse histories, significances, and perspectives will be more accessible and sustainably managed due to the sense of belonging and place they generate. In 2020, we launched a participatory initiative aimed at conserving an abandoned cardboard hospital constructed in the early 1910s in the isolated mountainous region of Vall Fosca (Lleida). The initiative, undertaken by the municipal council and the local museum, focused on revitalising the peripheral historical narratives associated with the industrial sites and working-class communities of the area. In May 2021, community archaeology initiatives started, fuelled by several community-driven heritage initiatives. After four years, we have been able to see how this project has generated a series of networks of engagement that have included different stakeholders and the various ways in which they contribute to the co-creation of the narratives on this site. Thus, this poster examines how engaging local communities in archaeological projects is challenging but contributes to unveiling the diverse narratives and perspectives associated with the site, thus enhancing its social value and significance. The key techniques developed, including exploratory surveys, mapping, photo elicitation, and item conservation workshops, particularly photogrammetry, are outlined and analysed. These initiatives have sought to promote intergenerational and contextual multivocality through the incorporation of archaeological cultural heritage into the socio-economic and cultural dynamics of the valley, as well as the beneficial effects they may yield for its local communities in both the short and long term.

110 MEASURING TIME AND OPEN-MINDEDNESS: INTERPRETING RADIOCARBON DATA THAT DOES NOT MEET OUR EXPECTATIONS BUT MIGHT CHANGE OUR PERSPECTIVES

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Regular session  
**Session keywords:** archaeological science, archaeometry, radiocarbon dating, data interpretation, changing perspectives  
**Session organisers:** Pavla Tomanova (Institute of Archaeology of the Czech Academy of Sciences, Prague) – Zbigniew Robak (Institute of Archaeology, Slovak Academy of Sciences) – Irka Hajdas (ETH Zurich) – Ken Massy (Ludwig-Maximilians-Universität München)

SESSION ABSTRACT

Radiocarbon dating has become a standard method used to determine the absolute age of artifacts and features. In archaeology, the method is often used to confirm or refine an estimated chronology that was built up on archaeological and/or historical data. However, in some cases the 14C results do not meet those estimations. What to do with the results that have let us down, or surprised us? Sometimes they are ignored on an assumption that the radiocarbon method failed. However, the method cannot fail and there is always a reason for unexpected and surprising radiocarbon ages. Thus, those 14C data can be accepted as a challenge and lead to further research. In this way, further research can progress sample selection, documentation and laboratory procedures. If, on the other hand, the procedures are correct, the confirmed 14C ages require explanation and understanding; therefore, the unexpected results must inspire researchers to a new way of thinking about the archaeological artifact/ feature under investigation and open a new perspective. This session aims to bring together case studies, in which radiocarbon dating provided unpredicted results and researchers took them as a challenge to further investigation. Thus, it will focus on positive examples, when those results brought a shift in methodology, opened a new research perspective or even changed the up-to-date paradigms. Invited are papers presenting radiocarbon dating of common types of materials, like wood, animal, or human bones, and especially welcomed papers based on dating of materials such as mortar, pollen concentrates from sediments, and other less frequently dated material. Accepted are contributions dealing with all periods from prehistory to the present. The goal of this session is to bring inspiration and discussion on how to approach and interpret data that, at first glance, does not match our research, and take advantage of them.



528. RETHINKING TIME: RADIOCARBON DATING CHALLENGES IN NEOLITHIC AND CHALCOLITHIC BUCHAREST

**Contribution format:** Oral  
**Contribution authors:** Vasile Opris (Bucharest Municipality Museum | ArchaeoScience Platform, Research Institute of the University of Bucharest) – Corina Simion – Cristian Mănăilescu – Maria Ilie – Doru Păceșilă (RoAMS Laboratory, Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering)

Recent collaborative efforts between archaeologists, chemists and physicists in Bucharest have focused on radio-carbon dating of animal bones and chaff-tempered pottery from Neolithic and Chalcolithic sites in the region. While radiocarbon dating of organic materials like animal bones is well-established, dating chaff-tempered types presents unique challenges due to the complex interactions between organic temper and ceramic matrix. In this study, animal bone samples were subjected to AMS radiocarbon dating. The results aligned with existing chronological frameworks, confirming the efficacy of AMS in dating such materials. Concurrently, attempts to directly date chaff-tempered pottery were undertaken, given the organic nature of the chaff temper. However, preliminary results indicate that the radiocarbon dates frequently deviate from expected chronological ranges when the safest fraction for radiocarbon dating is measured, namely the OREC. This discrepancy may arise from several factors, including reworking of older organic material into the temper, carbon-based constituents in the clay source or the complexities inherent in the firing and post-depositional processes. These results prompt a reevaluation of current methodologies in dating chaff-tempered pottery, particularly in selecting the most reliable fractions for analysis. Future research should focus on refining sample preparation techniques, assessing potential contamination sources, and exploring complementary dating methods to cross-verify results. This investigation underscores the importance of maintaining an open-minded approach, focusing on the relationship between clay sources, source depth and customs of material culture, especially when results challenge established chronologies. By embracing these challenges, researchers can develop more robust and accurate dating frameworks, enhancing our understanding of Neolithic and Chalcolithic periods in the Bucharest region. Research funded by a grant of the CNCS – UEFISCDI, project number PN-IV-P2-2.1-TE-2023-0876 (V. Opris). The radiocarbon dating was supported under PNII MEN-UEFISCDI, contract PN 23210102 and PN 23210201, while experiments were supported by the RGP through the IOSIN (RoAMS Laboratory).

2142. RADIOCARBON DATING OF DIVERSE SAMPLE TYPES AND CHRONOLOGICAL DISCREPANCIES IN MIDDLE AND LATE BRONZE AGE MORAVIAN BURIAL SITES

**Contribution format:** Oral  
**Contribution authors:** Klára Šabatová (Masaryk University, Brno) – David Parma (Institute for Archaeological Heritage Brno) – Mária Hajnalová (Constantine the Philosopher University in Nitra) – David Humpola (Institute for Archaeological Heritage Brno) – Romana Kočárová (Masaryk University, Brno)

As part of a study of Middle and Late Bronze Age burial sites in Moravia (Czechia), we have collected new radio-carbon dates from various types of samples. The bone samples from burials were mainly dated, but also burnt bones, archaeobotanical material of short-lived plants, and charcoal. Expectations of prehistoric chronology are best reflected by data from bone samples from inhumations and from short-lived plants gained by archaeo-botanical analysis. The charcoal samples are affected by the old wood effect, and the samples from carbonised bones that have undergone cremation are either affected by the charcoal from the firewood used in the pyre. It is possible that the measurements from cremated bones hide evidence for a more complex form of Urnfield burial ritual than we can reconstruct from our current archaeological evidence. However, this data needs to be synchronised according to certain rules. How to do this is the purpose of this paper. Using longer sequences of data from well typologically defined units and series of data from the same archaeological context (primarily the Znojmo burial site), we aim to discuss the relationships between data from different sample types, some of which fall completely outside the assumed chronological framework.

2304. RADIOCARBON DATING OF CALCINED BONES WITH HIGH CALCITE CONTENT: RESEARCH POTENTIALS AND LIMITATIONS. NEW ABSOLUTE DATES FROM LJUBLJANA, SLOVENIA

**Contribution format:** Oral  
**Contribution authors:** Brina Škvor Jernejcic (ZRC SAZU Institute of Archaeology, Ljubljana) – Christian Hamann (Leibniz Laboratory for Radiometric Dating and Stable Isotope Research, Kiel University)

The eponymous urnfield cemetery in Ljubljana (Slovenia), is one of the key sites for the chronology of the Late

Bronze and Early Iron Age in the south-eastern Alpine region. The site is situated in the Ljubljana city centre on the left bank of the Ljubljanica River. The cemetery is an example of an urnfield necropolis in which a uniform mode of burial – cremation – persisted throughout several centuries, from the beginning of the Late Bronze Age in the 13th century BC into the Early Iron Age in the 7th century BC. The absolute chronology of the cemetery, elaborated in the last decade, is mostly based on radiocarbon determinations of cremated bones. Surprisingly, cremated bones exhibit an unusual amount of carbonate, probably caused by calcite deposition from flooding or groundwater. This is to be expected as the site is very close to the Ljubljanica River. To assure the quality of radio-carbon ages of cremated bone in general and exclude the presence of deposited calcite in particular, a couple of parameters, e.g. carbon content and  $\delta^{13}\text{C}$  have proven to be helpful. The acetic acid treatment routinely used in the Leibniz-Laboratory turned out to be insufficient to remove deposited calcite in the samples from Ljubljana. We changed to higher concentrations of acetic acid, and measurements differ by up to 300 14C-years, with the date of the portion treated with higher concentrated acetic acid giving an older and more reliable date. To achieve best calendar age estimates, radiocarbon dates are arranged in a Bayesian model. Considering radiocarbon ages of the cremated bone samples are possibly still influenced by calcite depositions, we integrated an adapted outlier model.

1623. CONSTRUCTION HISTORY OF ONE RAMPART: DO RADIOCARBON DATES SUPPORT ARCHAEOLOGICAL OBSERVATION? LIPTOVSKÁ SIELNICA-LIPTOVSKÁ MARA SITE AS THE WESTERN CARPATHIANS EXAMPLE

**Contribution format:** Oral  
**Contribution authors:** Lucia Benediková (Institute of Archaeology of the Slovak Academy of Sciences) – Mária Hajnalová – Peter Barta (Department of Archaeology, Faculty of Arts, Constantine the Philosopher University in Nitra) – Miroslav. Kissová (Institute of Archaeology of the Slovak Academy of Sciences) – Dagmar Dreslerová (Institute of Archaeology of the Czech Academy of Sciences, Prague) – Karol Pieta (Institute of Archaeology of the Slovak Academy of Sciences) – Tibor Lieskovský (Faculty of Civil Engineering, Slovak University of Technology in Bratislava)

Liptovská Sielnica-Liptovská Mara settlement area is situated in the Liptov Basin in Western Carpathians, Northern Slovakia. The most important span of its history belongs to the La Tène and Early Roman periods. It consists of a fortified location on the hill Havránok and six settlements on its foothills. The subject of our paper is absolute chronological interpretation of construction history of the rampart in its SW segment excavated in 1965 and during revisional campaign in 2015. The excavations revealed a long-term (c. 350 year-long) and complex construction history with the beginning in the Early La Tene period (stage Lt B) and the last destruction phase in the Early Roman period (stage B1a). The stratigraphic sequence reaches max. thickness of 3 metres. Besides stratigraphic observations and not very abundant pottery finds, voluminous ecofactual assemblage was obtained including archaeobotanical and archaeozoological materials. AMS radiocarbon dates were measured on 14 short-lived charred archaeobotanical samples and 3 charcoals. During the 2015 excavations, the sampling was aimed to investigate the rampart chronometrically with possible refinement of the construction history based on observed stratigraphical phases and associated pottery finds. The paper shows difficulties in interpreting radiocarbon results from seemingly clearly recognized stratigraphic units. Acknowledgements This work was supported by the Slovak Research and Development Agency under the Contracts no. APVV-20-0044 and APVV-22-0151, by research grants VEGA 1/0399/18 and VEGA 2/0035/22, by OP RDE, MEYS under the project Ultra-trace isotope research in social and environmental studies using accelerator mass spectrometry, Reg. No. CZ.02.1.01/0.0/0.0/16\_019/0000728, and by project Paleoenvironmental and Chronometric Research of Important Archaeological Artefact-Ecofact Complexes in Slovakia project code 09I03-03-V04-00672 in the frame of The Recovery and Resilience Facility.

989. THE IMPACT OF 14C DATING ON THE CHRONOLOGY OF THE MIGRATION PERIOD IN ROMANIA: THE CASE OF PAUCA CREMATION CEMETERY

**Contribution format:** Oral  
**Contribution authors:** Ioan Marian Tiplic (Lucian Blaga University of Sibiu) – Corina Anca Simion – Maria Valentina Ilie – Cristian Mănăilescu – Doru Gheorghe Păceșilă (Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering (IFIN-HH))

The necropolises attributed to the so-called Mediaș group are among the first cremation cemeteries investigated through systematic archaeological excavations, beginning with Mediaș (Romania, 1969) and continuing with subsequent research in similar necropolises at Sibiu-Gușterița, Bratei, Dăbâca, Boarta, Târnava, Berghin, and more recently, Păuca (all located in the central and southern parts of Transylvania). These necropolises belong to a horizon of cremation cemeteries present in Central and Southeast Europe between the 6th and 10th centuries, according to relative chronology. The chronology of this horizon is based on comparative analysis and typological series conducted mainly during the 1970s and 1990s, without any radiocarbon 14C dating diagram for any of the necropolises. This has led to a broad chronological framework, spanning the 7th to 9th centuries, primarily



based on the typology of funerary ceramics. The dating of bones from cremation graves, a method developed toward the end of the 1990s, has already sparked discussions regarding the necessary corrections to the absolute chronology for the post-Roman period and the early Middle Ages, due to some inconsistencies between the relative dating methods used and the results from 14C dating. For this reason, the collaboration between ULBS and IFIN-HH marks a pioneering effort in Romanian archaeological research. Through the results obtained, it can offer a chronological diagram that will allow for greater accuracy in dating the cremation necropolises associated with the Mediaș group. Radiocarbon dating of samples from the necropolis at Păuca raises questions about the chronology of the necropolises attributed to the Mediaș group and permits a reanalysis of the chronology for the period between the 7th and 10th centuries A.D. for discoveries in the eastern Carpathian Basin.

**2305. ABSOLUTE DATING OF EARLY MAGYAR CEMETERIES:PRZEMYŚL (POLAND) AND BATAJNICA-VELIKA HUMKA (SERBIA)**

**Contribution format:** Oral  
**Contribution authors:** Irka Hajdas (Laboratory of Ion Beam Physics, ETH Zurich | Maria Curie-Skłodowska University) – Nevena Pantic (University of Belgrade) – Pawel Jarosz (Institute of Archaeology and Ethnology Polish Academy of Science, Cracow) – Marcin Wołoszyn (University of Rzeszów | Leibniz Institute for the History and Culture of Eastern Europe (GWZO), Leipzig)

An Early Magyar cemetery excavated in the late 1970s and early 1980s on Rycerska Street in Zasanie, the northern district of Przemyśl in SE Poland. represents a truly unique early medieval funerary site. It is the earliest known inhumation cemetery in medieval Poland and the only confirmed evidence of Magyar’s presence to the north of the Carpathian Mountains, known from Poland. Between 2021 and 2023, this archaeological assemblage was subjected to a new, comprehensive analysis, including radiocarbon dating. Fourteen of 20 radiocarbon dates were secured at the Poznan Radiocarbon Laboratory and six at CEZA in Mannheim. All dates fall within 8/9t. Ź early 11th centuries. Similar studies were made for an Early Magyar burial from Batajnica-Velika, found a few kilometers north of Belgrade in the historical region of Strymia (Srem). This burial was placed in the 10th -11th century in the contact zone between the Byzantium and Early Magyar holdings. The grave assemblage 1074 II from Batajnica-Velika was dated at the Poznań Radiocarbon Laboratory. Our presentation examines these dates in the context of other radiocarbon chronologies from Central Europe dating back to the 10th century. We will compare and analyze the results, assessing potential discrepancies and their underlying causes. Moreover, we will compare radiocarbon chronology with the evidence obtained from the study of archaeological materials and historical written sources.

**979. RADIOCARBON MEASUREMENTS OF THE GRAVES FROM THE CEMETERIES OF THE GREAT MORAVIAN EARLY MEDIEVAL SETTLEMENT AGGLOMERATION STARÉ MĚSTO–UHERSKÉ HRADIŠTĚ**

**Contribution format:** Oral  
**Contribution authors:** Lucie Valášková (Moravian Museum, Brno | Departement of Archaeology and Museology Masaryk University, Brno) – Luděk Galuška – Jakub Langr (Moravian Museum, Brno)

The paper will deal with questions and problems raised by radiocarbon dating of selected graves, uncovered during archaeological excavations of burial grounds in Moravia in the eastern part of the Czech Republic. In the 8th–10th centuries, these burial grounds were part of one of the centres of Great Moravia, the remains of which are currently located in the cadastral areas of the towns of Uherské Hradiště and Staré Město (Zlín Region, CZ). Radiocarbon dating has been used to a greater extent in recent research by the Centre for Slovanic Archaeology of the Moravian Museum. This research focused on the extensive early medieval burial ground in the sacral area at the site of Uherské Hradiště-Sady. The C14 dating was supposed to help answer the question of local continuity or discontinuity in burials in the “problematic” 10th century. A total of 27 graves were analysed. Some of the graves, originally dated to the 11th–12th centuries, were shifted to the 9th century based on the results of C14 analyses. In the case of other graves, which have been dated to the 9th century so far, there was a shift to the end of the 7th century and to the 8th century, i.e. to the time when burials were not yet to be held at the site and the church itself was not supposed to stand here. Along with questions related to the dating of the church and its construction phases, fundamental questions had to be raised regarding the socio-religious changes in this area in the early Middle Ages. The same questions related to the recently obtained radiocarbon research data are currently being addressed at other sites of the Staré Město – Uherské Hradiště agglomeration, for example: Staré Město “Na Valách” and Modrá near Velehrad.

**1098. RADIOCARBON DATING OF EARLY MEDIEVAL GRAVES. WHEN DID THE BURIED INDIVIDUALS ACTUALLY DIE?**

**Contribution format:** Oral  
**Contribution authors:** Renáta Prichystalová – Petr Dresler (Masaryk University Brno) – Sylva Kaupová Drtikolová (National Museum Prague)

More than 250 radiocarbon dates have been analysed for the early medieval Břeclav–Pohansko stronghold and its surroundings. Most of the samples come from skeletal graves. Some individuals were tested 4 to 5 times. It was a surprise that the calibrated data of one individual oscillated within an interval of up to 100 years, which is very limiting to unusable for refining the chronology of the Middle Hillfort Period burial site (Middle Hillfort Period: 800–950). Therefore, we continue to test a method that may be helpful to regulate broad time intervals based on radiocarbon dates of the tested human bone material. We will present a comprehensive set of burials from the cemetery around the First Church (location Manor Court). The selected burials are directly related to the church (interior burials, overlapping with the foundation of the temple). Stable isotope analysis of C, N and Sr (diet, origin) will be used to explain the wide variation in the radiocarbon dating of an individual, as it has been shown that the type of diet, its deficiency, poor health can influence the result of radiocarbon dating.

**228. ISSUES OF THE RADIOCARBON CHRONOLOGY OF THE BOJNÁ AGGLOMERATION AND OTHER GREAT MORAVIAN SITES**

**Contribution format:** Oral  
**Contribution authors:** Zbigniew Robak (Institute of Archaeology and Museology, Masaryk University, Brno) – Matej Ruttkay – Karol Pieta (Institute of Archaeology, Slovak Academy of Sciences, Nitra)

This presentation focuses on the radiocarbon chronology of the early medieval defensive agglomeration of Bojná in Slovakia, particularly the Valy fortress and the nearby Rotunda of St. George—one of the oldest surviving churches in Middle Europe. Initial radiocarbon dates from Valy suggested the site should be dated to the late 8th or early 9th century, a conclusion allegedly supported by the archaeological finds. However, this dating conflicted with later dendrochronological analyses of the fortifications, which placed their construction at the turn of the 9th and 10th centuries. A meticulous re-evaluation of the archaeological finds revealed that the initial chronology was based on a methodological error. This error stemmed from the misinterpretation of radiocarbon data from the nearby Pobedim stronghold in the 1970s, that had not been calibrated. Subsequent research revealed and corrected this mistake, and new samples confirmed a revised chronology pointing to the late 9th century. This re-assessment significantly undermined the established chronological paradigm for Carolingian-age artifacts in Middle Europe. Nevertheless, the reliability of the radiocarbon dates for Bojná and the reasons for observed discrepancies remained in question. Further analyses continued to indicate a broad chronology for the site, spanning nearly 200 years and suggesting early origins. It was only through collecting, sequencing, and analyzing a larger set of radiocarbon dates from Bojná that it became clear the dates were not “contaminated.” However, they did not represent an absolute chronology of the site and required strict interpretation within their archaeological context. This is particularly evident in the series of dates from the Valy ramparts and the St. George’s Rotunda walls. Seemingly improbable dates were explained only after analyzing technological, constructional, and post-depositional processes affecting the studied structures. These findings underscore the necessity of integrating radiocarbon data with archaeological evidence to achieve a comprehensive understanding of the sites chronology.

**224. TRADITIONAL PERSPECTIVES ON EARLY MEDIEVAL STRONGHOLDS VERSUS NEW RADIOCARBON DATA. CASE STUDY OF THE BUDEČ STRONGHOLD**

**Contribution format:** Oral  
**Contribution authors:** Pavla Tomanova (Institute of Archaeology of the Czech Academy of Sciences, Prague)

Budeč Stronghold belongs to one of the most important and long-time investigated early medieval strongholds in the Czech Republic. It is dated back to the end of the 9th to the 12th century. Under the influence of the testimony of some early medieval legends, the development of the site is traditionally divided into two phases. The first phase, characterised by the construction of the St. Peter’s Rotunda and the operation of the so-called “Duke’s Court”, is associated with the life and stay of Duke (and later Martyr) Wenceslas at Budeč. The other phase, defined by e.g. erection of the church of Virgin Mary, has been related to the change in the political situation and administration of the centre of Budeč after Wenceslas’ martyrdom. Recently, a review of archaeological sources is underway, including radiocarbon dating of selected graves from the burial sites at both Budeč churches. The 14C data are surprising for the proponents of the traditional perspective described above. Together with the revised archaeological data, however, they suggest an alternative perspective on the site. According to it, the construction of both churches may have been part of a unified construction plan to build a mission centre in Bohemia.



583. ISSUE WITH THE CHRONOLOGY OF THE MEDIEVAL CHURCH OF CISNĂDIE (SIBIU COUNTY, TRANSYLVANIA) IN THE LIGHT OF RADIOCARBON DATING

**Contribution format:** Oral  
**Contribution authors:** Maria Emilia Cringaci Tiplic (Institute of Social Sciences and Humanities Sibiu, Romanian Academy) – Corina Anca Simion – Cristian Manailescu – Alexandru Răzvan Petre – Oana Gaza – Maria Valentin. Ilie – Doru Gheorgh. Pacesila (Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering (IFIN-HH))

In historiography, there is an ongoing debate regarding the chronology of the earliest medieval churches in Transylvania in general, and the Romanesque basilicas in southern Transylvania in particular. Recent archaeological excavations at the medieval fortified church of Cisnădie, one of the most significant Romanesque basilicas in Transylvania, located 8 km south of Sibiu, have revealed relics of the Romanesque basilica’s foundations, graves from a medieval cemetery, and a medieval bell-casting pit discovered inside the western main nave. Archaeological and stratigraphic studies indicate that this ecclesiastical edifice and its medieval cemetery developed in phases. This proposal aims to present the results of radiocarbon dating of various samples (lime mortars, human bones, and charcoal / fabric scraps from the bell mold) to establish an accurate chronology of the church, the earliest graves, and the bell-casting activity—one of the oldest pieces of evidence for bell production in Transylvania. However, an initial analysis of some samples yielded anomalously old radiocarbon ages for the Romanesque basilica’s foundations and an abnormal chronological sequence for the graves. In seeking the causes of these anomalies and having sufficient archaeometric arguments to support issues of absolute chronology, we have attempted to reconsider the radiocarbon dating analyses using alternative methods for different materials. Whether or not the same results are obtained is a key point of this presentation. Additionally, radiocarbon dating results obtained for the medieval churches and their cemeteries by the team at IFIN-HH (RoAMS Laboratory) will also be highlighted. The radiocarbon dating was supported under Research Programme Partnership in Priority Areas PNII MEN-UEFISCDI (PN 23210102, PN 23210201). Experiments were carried out at the 1 MV Tandetron™ accelerator from “Horia Hulubei” National Institute for Physics and Nuclear Engineering (IFIN-HH) and were supported by the Romanian Government Programme through the National Programme for Infrastructure of National Interest (IOSIN).

1809. AMS DATING FOR MEDIEVAL KYIV: A NEW APPROACH

**Contribution format:** Oral  
**Contribution authors:** Natalia Khamaiko (Institute of Archaeology of the National Academy of Sciences of Ukraine | Leibniz Institute for the History and Culture of Eastern Europe (GWZO), Leipzig) – Oleksii Komar (Institute of Archaeology of the National Academy of Sciences of Ukraine) – Irk. Hajdas (ETH Zurich) – Marci. Woloszyn (University of Rzeszów | Leibniz Institute for the History and Culture of Eastern Europe (GWZO), Leipzig)

In 2024, AMS dating of medieval material from Kyiv, Ukraine, was conducted. We selected 56 samples covering the period 700–1240. The samples come from the Desiatynna (Tithe) Church estate in the Upper Town (excavations 2005–2011) and 35 Spaska Street in Podil, the Lower Town (excavations 2007–2011). The stratigraphy of medieval Podil, overlapped by sterile layers of alluvial sand or deluvial clay, prevents mixing finds from different periods and ensures a reliable sequence of closed contexts. The absolute dating of Early Rus’ manor estates at 35 Spaska Street is supported by dendrochronology, coins, lead seals, and two major fires linked to Kyiv’s capture in 1169 and 1240. The stratigraphy at the Tithe Church estate is defined by the Starokyivske hillfort ditch, filled shortly after 980 and leveled during the construction of the Desiatynna Church (990–996). A mass grave of victims from the 1240 Mongol sack of Kyiv was also discovered at the site. All samples were analyzed at ETH Zürich Laboratory and calibrated using OxCal 4.4. The calibrated dating ranges, with 95.4% confidence ( $\sigma$ ), matched the predicted archaeological dates in 44 out of 56 cases (78.6%). An Early Iron Age sample from a pit below the rampart may belong to an earlier cultural layer. Additionally, an animal bone from the 1240 mass grave, predating human remains, may have come from an earlier layer. For the remaining 10 samples, stratigraphy rules out archaeological dating errors. Five calibrated ranges differ slightly from archaeological dates. Most samples with earlier-than-expected radiocarbon dates come from 1160–1240 layers at 35 Spaska Street (7 out of 8) and the 1240 mass grave (4 out of 8). Notably, radiocarbon dating agreement was much lower for animal samples (11.1%) than human bones (42.9%), requiring further investigation and discussion.

1330. READING THE 14C LAB REPORT: HOW RELIABLE IS THE RESULT?

**Contribution format:** Poster  
**Contribution authors:** Irka Hajdas (Laboratory of Ion Beam Physics, ETH Zurich | Maria Curie-Skłodowska University)

Researchers who seek to determine the age of events they study are always concerned with the precision of their analysis. However, accuracy is central to all radiocarbon dating analyses and must be addressed before discussing precision issues. Nowadays, most AMS laboratories achieve standard precisions of ca. 2-3‰ if enough carbon (0.5-1.0 mg) is available, but smaller samples can also be analyzed with lower precision. The procedures are standardized, and International Laboratory Intercomparisons projects provide the quality check. The sample type, size, and potential contamination problem might vary between the applications: archeology, geochronology, art research, forensic, and environmental studies. Still, the analysis targets the separation of carbon, which was the faithful ‘witness’ of the studied event in the past. The key question is: ‘How can we ensure the lab’s report is based on a 14C analysis of such carbon?’ New analytical methods currently support sample preparation and provide parameters to help assess the sample’s prospects. The paper will present an overview of the most common problems in archaeological samples and methods for detecting and neutralizing them. Finally, it will address the various parameters in the reports and discuss implications for the final radiocarbon ages.

2131. AN INVESTIGATION INTO THE EFFECTS OF CONSOLIDANT CONTAMINATION ON AN EARLY BRONZE AGE LOGBOAT IN IRELAND

**Contribution format:** Poster  
**Contribution authors:** Daniel Morris – Gerard Barrett (Queen’s University Belfast)

An investigation was carried out into the removal of consolidant contamination from wood taken from a possible Early Bronze Age logboat, found in Garraunfadda, Ireland. Samples from this object were originally submitted in 2017 and dated using standard AAA pretreatment techniques. The resulting dates did not agree with an assessment of the construction style of the logboat. Upon reassessment, contamination from consolidants was suspected, leading to a second measurement where standard consolidant removal pretreatment methods were used. The resulting date provided better agreement with archaeological evidence. However, suspicion still remains as to the extent to which existing pretreatment methods can effectively remove consolidants, as it has been shown that statistically significant contamination can remain, even when not apparent in FTIR spectra, a standard technique for diagnosing contamination. The results of an investigation, using novel ramped pyrolysis, to assess the extent of any remaining contamination, and if possible, minimise the its effect on the measured radiocarbon age, are presented.

111 LET’S ADDRESS THE OTHER-THAN-HUMAN ANIMAL IN THE ROOM: MOVING FORWARD WITH MULTISPECIES ARCHAEOLOGIES OF PREHISTORY

**Session theme:** 2. Intertwined Epistemologies: Transcending the Data – Theory Divide  
**Session format:** Discussion session  
**Session keywords:** Multispecies Archaeology, European Prehistory, Interdisciplinarity, Posthumanism  
**Session organisers:** Eleanor Swallow – Nóra Nic Aoidh – Oliver Line (University College Dublin) – Gywain Jones (University of Bristol) – Alex Siekmann (Trinity College Dublin)

SESSION ABSTRACT

Ideas of animal-human and multispecies pasts have been gaining more widespread attention in prehistoric archaeology. Increasing engagement with posthumanist thought, relational ontologies, and ethnoarchaeology has made space for alternative narratives of the past that move beyond the uncritical othering, objectification, and commodification of prehistoric other-than-human animals. Animals are being recognised as active co-participants in and co-creators of prehistoric lifeways and sociality. Structured efforts are needed to ensure the longevity of these presently energetic discussions in multispecies archaeologies. Collaborative interdisciplinarity is essential to prevent these theoretical approaches to multispecies pasts being confined to “the lunatic fringe of archaeology” (Grant 1989). We encourage interdisciplinary collaborations that bridge the gap between humanities and the sciences. Likewise, collaborations between those studying different periods of prehistory that have adopted these theoretical perspectives at varied rates and applied them in different ways are encouraged. Special attention must also be given to the practical application of these theoretical frameworks. The data requires interpretation which creatively considers alternative ways of knowing and being in the world, to gain richer understandings of the past and animals’ central role in the emergence of prehistoric lifeways. We invite contributions, individual and collaborative, that address these and related themes from a broad range of archaeological disciplines within European Prehistory including but not limited to zooarchaeology, aDNA analysis, isotopic analysis, depositional practices, iconography, materiality, architecture, and landscape.



1644. FISHING AS INTERSPECIES COMMUNICATION: RETHINKING THE ROLE OF FISHING GEAR IN MESOLITHIC EUROPE

**Contribution format:** Oral  
**Contribution authors:** Anja Mansrud – Simo. Radchenko (Museum of Archaeology, University of Stavanger)

Social archaeology has long acknowledged the capacity of material culture to communicate, mediate, and ‘act back’ on people and social life, yet the role of objects in interspecies communication remains largely unexplored. This paper addresses the topic of objects in interspecies communication, by focusing on visual signalling practices in fishing. By drawing on insights from human-animal studies and multispecies approaches, we argue that fishing gear act as material binders, enabling interspecies contact and communication. Multispecies ethnographies further highlight that a successful catch depends on the ability to ‘think like a fish’ and consider fishing equipment from the fish’s perspective. Visual media is particularly significant in angling, where lures are used to attract fish to bait, and observations of fish responding to baits prompt humans to see them as active, purposeful agents. Such an approach allows a more active role to nonhumans in past life-worlds and is employed as a heuristic device to rethink fishing in Mesolithic Europe (8000-4000 BCE). We will discuss three case studies exploring angling, spearing, and net-fishing respectively.

1728. ANCIENT LIVESTOCK, ANCIENT GENES: THE GENETICS OF BRONZE AGE CATTLE AND SHEEP IN BRITAIN AND THE NETHERLANDS

**Contribution format:** Oral  
**Contribution authors:** Alex Siekmann (Trinity College Dublin)

Genetic analysis of prehistoric domestic animals can be a powerful tool in learning about those prehistoric societies and cultures that lived with domesticated animals. Since their domestication in the Middle East over 10,000 years ago, cattle and sheep have become two of the most important livestock species, accompanying human’s on their migrations into Europe and often outnumbering humans at settlements. Domestic cattle found in Europe descend from a small number of wild aurochs that were domesticated in South-West Asia but also show some levels of ancestry of local European aurochs populations that they interbred with before the final extinction of European aurochs in the 17th century. The genetic history of domestic sheep in Europe similarly goes back to an initial domestication event, followed by a change of ancestry correlating with the advent of use of secondary products, e.g. wool. This presentation reviews the work of a PhD project where whole genome sequencing is used to explore the genetics of cattle and sheep in Bronze Age Europe. The goal is to build a dataset that samples a high number of samples from a small number of select sites in Britain and the Netherlands. This aims to detect information about ancestry patterns and herd structure and also provides information about molecular sex to collaborators working on the same sites to add the dimension of molecular sex to other analyses (e.g. isotopes) in order to improve our understanding of the domestic animals that were so integral to the Bronze Age communities that kept them.

1213. WHERE THE CATTLE ROAM – THE LANDSCAPE AND ENVIRONMENTAL CONTEXT OF BRONZE AGE ANIMAL ARCHITECTURE

**Contribution format:** Oral  
**Contribution authors:** Floor Huisman (University College Dublin)

Animal architecture is an important source of evidence on human-animal interaction in the prehistoric past. Created for or by animals, the structure and features on archaeological sites which relate to animals, including shelters, fieldsystem enclosures and droveways, wells/waterholes, hoofprints and fences, shed light on animals’ active role in the Bronze Age of northwestern Europe. It demonstrates how animals co-created the archaeological record by shaping human and animal life spaces, and how they influenced everyday life and human sociality. The character and type of animal architecture used by past multispecies communities is shaped by the shared needs and interaction of humans, other animals, and (in many fieldsystems) arable crops. The physical landscape and environmental factors, including soil types and water sources, may equally influence the layout, organisation, function and use of fieldsystems and other animal architectures. Together with social factors, including available labour, intra- and intercommunity collaboration and negotiation, these result in different kinds of human-animal interaction and mobility patterns, which differ significantly from one place to another, and may change over time. To gain more insight into how social and environment factors influence animal architectures and human-animal interaction and mobility, this paper will integrate the spatial and social analysis of animal architecture with environmental data relating to (arable) land use and the wider landscape. It will compare sites located in different landscapes and environments and trace changes in human-animal interaction through time, to demonstrate how the interplay between social and environmental factors resulted in a great diversity

of variable multispecies lifeways in the Bronze Age of northwestern Europe.

1555. HUMAN AND ANIMAL COEXISTENCE DURING THE LATE NEOLITHIC IN THE SOUTHERN CARPATHIAN BASIN:A CASE OF THE BEZDAN-BAČKI MONOŠTOR SITE (SERBIA)

**Contribution format:** Oral  
**Contribution authors:** Maja Kokanovic – Jelena Jovanovic – Tamara Blagojevic (BioSense Institute, University of Novi Sad)

Understanding different animal husbandry and hunting practices is crucial when studying the processes of adaptation and consolidation of the economic practices of the first farmers and their successors in the Southern Carpathian Basin. The faunal remains analyzed in this study come from the Late Neolithic site of Bezdan–Bački Monoštor. They were collected during a rescue archaeological excavation conducted in 2013 by the Provincial Institute for the Protection of Cultural Heritage Petrovaradin in cooperation with the City Museum Sombor. The analysis revealed that the dietary habits and economy of the community were based mainly on the breeding and consumption of domestic animals, primarily cattle, followed by caprines, and then pigs. Game played a significant role in the diet, with deer, aurochs, wild boar, and roe deer among the most commonly hunted species. In addition to mammals, exploitation of aquatic resources is also evident, primarily river mussels and snails, while fish, such as catfish (*Silurus glanis*), were hunted occasionally. The obtained results are supported by isotopic analyses of carbon and nitrogen conducted on human skeletal remains from this site, which indicate that the local population’s diet was mostly based on the consumption of terrestrial mammals, thus confirming the general dietary pattern during the Neolithic in this part of the Carpathian Basin. These data have provided new insights into animal husbandry and hunting practices during the Late Neolithic while also laying the groundwork for further analyses, such as strontium and sulfur isotope studies, which will further deepen our understanding of this crucial period in the human past. This research was supported by the Science Fund of the Republic of Serbia, #GRANT No. 7498, Moving across the plain: reconstructing the lifetime movements of farming pioneers and their successors during the Neolithic in the Southern Carpathian Basin-MOVE.

1637. CATTLE-GORISATION? : NONHUMAN ANIMAL TAXONOMIES IN NORDIC BRONZE AGE ROCK ART

**Contribution format:** Oral  
**Contribution authors:** Nóra Nic Aoidh (University College Dublin)

Nonhuman animals are among the most common motif-type in Southern Tradition Nordic Bronze Age rock art, along with cup marks, ships, and ‘human animals’. Despite their prevalence, discussions of nonhuman animals in iconography have been quite limited, both in categorisation and application. Horses and bulls dominate what little literature has been published, and these are almost exclusively discussed anthropocentrically, in terms of social and political capital: bulls’ horns adorn the helmets of the “divine ruler” (Kristiansen, 2005: 333), and horse-head figureheads top the prow extensions of ships carrying sword-bearing warriors. In such examples, the nonhuman animals are abstracted and symbolified, and the associated anthropomorphs are shown to be (or presumed to be) male. Prevalent assumptions about the quintessential Bronze Age warrior chief have been, and continue to be, challenged in posthumanist literature. However, such debates have only just begun to query the role of nonhuman animals in these societies. Research preferencing specific nonhuman animal species over others leaves large gaps in understanding the physical and conceptual composition of multispecies rock art. It is inherently problematic to apply uncritically modern concepts of nonhuman animal categories — specifically taxonomy — to iconography created in the Nordic Bronze Age. However, categorisation can be a useful tool to help decipher multispecies lifeways in the past. Working within the limits of the “tyranny of categorisation” (Brück, 2019: 9), this paper explores a variety of alternative ways in which nonhuman animals may have been categorised, or categorised themselves, in the rock art. Using examples, this paper explores alternative nonhuman animal-attributes like ethology, size, and narrative context, in addition to compositional construction. In doing so, it demonstrates the remarkable diversity of nonhuman animals in Nordic Bronze Age rock art, both in the fluidity of nonhuman-animal-types and the wide array of circumstances in which they were depicted.

308. WHAT IF...? ANIMAL-HUMAN ENTANGLEMENTS IN WESTERNMOST EUROPEAN LATE PREHISTORY

**Contribution format:** Oral  
**Contribution authors:** Nelson Almeida (CHAIA-IN2PAST (U. Évora) / UNIARQ (U. Lisbon)) – Catarina Guinot (U. Évora)

The increasing adoption of posthumanist thought is allowing new vibrant multispecies and other-than-human approaches to the archaeological record. Data on prehistoric societies is growing and this fosters the discussion of pieces of evidence under renewed lens. Animals were of relevance in Prehistoric lifeways due to their agency, but also for being part of the material (and immaterial) records that we study. Westernmost Europe has a large and diversified evidence of Neolithic, Chalcolithic and Bronze Age contexts, some of which with a large number



of faunal remains. Other smaller faunal “anachronic” assemblages are also found, especially related to interpretations that go beyond mere economic perspectives. On this note, our aim is to discuss Central and Southern Portugal Late Prehistory zooarchaeological record in relation to other broader pieces of evidence. By looking at depositional practices and contextual taphonomy approaches, together with data from the “artistic” record and other materials, we intend to discuss the applicability of different perspectives related to segmentation, partition and participation, liminality and animal agency to these archaeological records. Adopting a *longue durée* approach, this data is assessed in relation to the diachrony and synchrony of Portuguese Late Prehistory. We argue that although availability and economic decisions, among others, limited human decision regarding animal exploitation and display, other variables related to animal agency and ideological aspects including the relevance social events had a strong influence on these decisions, specially in moments of socio-cultural and/or environmental tension.

**764. LET’S TALK ABOUT THE MAMMOTH IN THE ROOM: A STABLE ISOTOPE STUDY OF MOLDOVAN MAMMOTH REMAINS**

**Contribution format:** Oral  
**Contribution authors:** Jay Ford (University of Cambridge)

This isotopic study focuses on the mammoth remains from the Upper Palaeolithic site of Climăuți, Moldova. It has been evidenced at Climăuți, and other neighbouring sites that mammoths were exploited for multiple purposes; a suitable food source, a source of ivory fo. tools and personal ornaments, and as skeletal remains as a source of building material. Owing to these faunal remains, the improvement of knowledge regarding Upper Palaeolithic mammoths in Moldova and their relationship with the *Homo sapiens* populations it affords; Climăuți is a valuable site. To contextualise this site and gain a broader understanding of Moldova as a region, faunal material (not limited to mammoth) from other key Moldovan sites, has also been analysed isotopically. Existing relevant research in Moldova is limited, particularly isotopically, yet the regions geographic location in the mammoth steppe forming part of the bridge between Western Europe and the rest of Eurasia, paired with the richness of archaeological material make it a valuable source of information to investigate past human-animal relations in prehistory, such as between humans and mammoths. A stable isotopic analysis provides greater insight into the diet and movement of mammoths and through incorporating additional species, allows for the creation of more precise isoscapes. Through a focus on mammoths, a keystone species of the mammoth steppe, our understanding of human behaviour and how they exploited this species can be furthered.

**1180. ‘REFUSE’-ING THE DISMISSAL OF THE EVERYDAY: INVESTIGATING THE DEPOSITION OF DISARTICULATED ANIMAL REMAINS IN BRONZE AGE EUROPE**

**Contribution format:** Oral  
**Contribution authors:** Eleanor Swallow (University College Dublin)

While animal remains make up one of the largest volumes of material remains in the prehistoric archaeological record, they are often undervalued for their potential contributions of socio-cultural insight. Animal remains, especially in their more frequently recovered disarticulated form, are frequently confined to an interpretative box of economic-centric commodification, regarding both the implicitly objectified remains and the nonhuman individuals they represent. The multispecies approach encourages and facilitates interpreting outside this anthropocentric box. This paper will present the research of a Bronze Age case study which employs a multispecies- and posthumanist- inspired approach to exploring animal remains deposition practices. The study focuses on material from excavations at Westfrisiaweg, Netherlands, which revealed a rich, multi-phase perspective of the everyday lifeways and deathways of the area’s subsistence farming communities. The study incorporates spatial and quantitative distribution analyses of disarticulated remains, to approach the data without restriction of pre-imposed categories and assumptions of the extents of their interpretative value. The study trials a methodology which aims to look beyond the potentially limited, dominant interpretations of an all too familiar and uncritically dichotomous view of Bronze Age societies.

**2076. THOSE DEATH DID NOT PART. HUMAN-DOG BURIALS IN IRON AGE NORTHERN NORWAY**

**Contribution format:** Oral  
**Contribution authors:** Kristin Armstrong Oma – Arild Klockervoll (University of Stavanger)

A wide range of domestic and wild animals were incorporated in Scandinavian Iron Age (c. 500 BC–1050 AD) mortuary assemblages, but dogs – or human-dog relationships – held a special significance. In Northern Norway, dogs were included in more than a third of the Late Iron Age (c. AD 600-1050) graves with identified animal bones, and it is the only domestic species occurring prior to that, in three graves at a cemetery from c. AD 400. Unlike other animals, the dogs in these and several similarly well-preserved LIA burials had been carefully placed in close proximity to the human bodies, or even overlaying each other. The dogs lain across the legs of

an 18-year-old warrior and the torso of a 12-year-old at different locations in Merovingian Period (c. AD 600-800) Nordland are evocative examples from Ytre Kvarøy and northern Andøy, respectively. While exceptional, they can act as powerful case studies relevant to interpretations of more poorly preserved, excavated, or documented assemblages of this kind, and even to cremated ones. They provide unique insights into practices and beliefs and raise issues pertaining to ontological relationality. How, then, can we understand such burials? The Iron Age societies that they sprang from were multispecies communities, as attested by the Old Norse written sources. Old Norse mythology implies that animals had a place in the afterlife, and notions of those otherworldly places was probably inconceivable without them. We explore how a close analysis of some very well-preserved burials can give insights into more specific understandings of the intertwining of lived practices and mythology in these multi-species communities. We draw on ethological and biochemical research of human-dog relationships to gain a deeper understanding of what kind of shape and depth the intertwined pasts of humans and dogs took in Northern Norway in the Iron Age.

**2044. BRIDGING ALL THE BINARIES: INTEGRATING CONTEMPORARY THEORY WITH SCIENTIFIC APPROACHES TO ARCHAEOLOGICAL ANIMALS**

**Contribution format:** Oral  
**Contribution authors:** Katherine Kanne (University College Dublin)

Multispecies and posthumanist theory in archaeology has worked to centre the animal in the past two decades. The large and rapidly increasing corpus of biomolecular data of ancient animals at progressively finer scales of resolution has led to transformations in how we understand the processes of animal domestication, the lives of prehistoric animals, and human-animal relations. However, the animal often remains locked outside of the pastures of more mainstream archaeological theory, and in interpretations resulting from large biomolecular studies. Animals in archaeological theory more broadly continue to be relegated to the ‘back forty’, with interpretations that remain staunchly anthropocentric, economic, and techno-deterministic. Calls to integrate recent theory and biomolecular data have regularly been levied, but rarely has this integration occurred in practice. Reconciling multispecies and biomolecular archaeologies requires innovative theory grounded in tangible data explored in collaboration with biomolecular archaeologists open to novel interpretations. With examples from the European Bronze Age, this paper presents the initial efforts at developing an explicit theoretical framework that integrates contemporary archaeological perspectives with recent biomolecular archaeologies in order to produce new narratives of prehistory.

**231. THE GRAVE YAWNS FOR THE HORSEMAN. DEPICTIONS OF COLLAPSING AND DEATH OF NON-ROMAN HORSES ON THE COLUMN OF MARCUS AURELIUS**

**Contribution format:** Oral  
**Contribution authors:** Goldie Nagy (RTG 2304 Byzantium and the Euromediterranean Cultures of War, JGU Mainz)

Before the industrial revolution horses have been without a doubt the biggest non-human contributors to human-made conflicts, such as wars. Depictions of equines are also among the oldest and farthest spread motifs in history. Since the dawn of equine-enhanced warfare the image of this timid prey animal evolutionary constructed for flight became irredeemably entangled with symbols of war. Therefore, an equine history of war, as told by the way so called war horses were depicted, seems reasonable for a multispecies approach of human-made conflict. This iconographic case study investigates depictions of collapse and death of horses and their riders on the monumental relief column of Marcus Aurelius (finished 193 C.E.) and comparable relief images to enhance the perception of war horses on the Roman and their enemies’ side, their depicted treatment and violence against horses within their status between living beings and resources for war. By additionally observing Roman contemporary military manuals and archaeological realities from the middle Danuban provinces a contrast between images and the realities of violent conflict for equines shall be created to hopefully explore potentials for further research on horses as real and pictorial agents in war.

**2088. FIGURINES, HORNS AND VESSELS. ENEOLITHIC ANIMAL REPRESENTATIONS IN CROATIA**

**Contribution format:** Oral  
**Contribution authors:** Maja Pasaric (Institute of ethnology and folklore research)

Eneolithic sites in Eastern Croatia have yielded a number of animal representations manufactured from clay. Animals have mainly been represented as figurines, their bodies have also been associated with vessels and cattle horns usually modelled independently and in different variations. Animal representations have been discovered in settlements, sometimes in close association with built structures and living spaces and they have so far, mostly, been interpreted as symbols, ritual artefacts or reflections of human economic choices. Drawing from recent contributions that encourage the focus on multispecies societies and different ways in which people



relate to material culture the paper aims to move away from strictly economic or symbolic interpretations of Eneolithic animal representations. The contribution will consider how certain animals and humans might have intersected and interacted in shared settlements an. landscapes and how this might have affected humans to represent animal bodies in different forms and model them from clay.

45. THE ORIGINS OF ANIMAL TRACTION IN BRITAIN

**Contribution format:** Oral  
**Contribution authors:** Phoebe Liu (University of Sheffield)

Animal traction is one of the key technological innovations that drove socioeconomic transformations in prehistoric societies. However, its emergence in Britain has remained poorly understood, mainly due to the limited preservation of physical evidence and the absence of iconographic representations associated with animal traction. Given the fragmented archaeological evidence, the osteological approach is the most promising method for advancing understanding of the development of this technology. The convergent results from all osteological approaches indicate that the earliest substantial evidence for cattle traction in Britain emerged during the Middle to Late Bronze Age. This timing aligns with a period of profound social transformation characterised by agricultural intensification and the emergence of more complex hierarchical social structures during the latter half of the second millennium BC. Animal traction was revolutionary, not only enhancing cultivation capabilities but also fostering a new dynamic between humans and animals. Cattle were active participants rather than passive resources, working with humans to perform labour-intensive tasks that reshaped agricultural practices and economic structures.

1512. ENCOUNTERS IN STONE: RED DEER - HUMAN RELATIONSHIPS IN THE LATE MESOLITHIC ROCK ART SITE VINGEN

**Contribution format:** Oral  
**Contribution authors:** Yrja Skjærum (University of Bergen)

This paper investigates human-red deer relationships during the Late Mesolithic (c. 6400–4000 BC) through an in-depth analysis of red deer motifs at the Vingen rock art site on Norway’s west coast. As the country’s second-largest Stone Age rock art site, Vingen contains approximately 2,200 motifs, the majority depicting red deer (*Cervus elaphus*). Applying ethology—the study of animal behaviour—to the iconographical analysis of these depictions, this study explores how rock art reflects real-life encounters between humans and red deer. This theoretical and methodological lens recenters the animals as active participants in human-animal relations, acknowledging their agency in shaping these encounters. Integrating ethological insights with relational ontologies, this paper examines why red deer became a dominant motif and what their representations reveal about Late Mesolithic understandings of animals. I argue that red deer motifs in rock art were not merely symbolic abstractions but conveyed detailed observations of red deer behaviour, including social structures, seasonal migrations, and mating rituals. This approach offers a new perspective on motif selection, demonstrating that artistic representations in Vingen’s rock art were grounded in direct observations of red deer behaviour, rather than purely symbolic abstraction.

112 LIDAR IN MEDITERRANEAN ARCHAEOLOGY

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Regular session  
**Session keywords:** LiDAR, Mediterranean archaeology, theory and methods, case studies, landscape archaeology, remote sensing  
**Session organisers:** Giacomo Fontana (Texas Tech University) – Giacomo Vinci (University of Padua) – Ale. Knodell (Carleton College)

SESSION ABSTRACT

LiDAR technology is revolutionizing Mediterranean archaeology by offering innovative approaches to surveying and interpreting complex landscapes. However, its application across the region remains uneven, particularly due to significant variations in data availability. While some countries benefit from comprehensive, large-scale government datasets at different resolutions, others must rely on ad hoc often drone-based, acquisitions. These disparities directly affect LiDAR’s research potential, shaping its ability to address archaeological questions at both landscape-wide and site-specific levels. The methodological divide between large-scale, lower-resolution LiDAR and high-resolution, site-focused data presents important considerations for researchers. In countries like Spain, Slovenia and Italy, where extensive datasets are accessible, efforts to identify archaeological sites across vast regions are progressing, often supported by machine learning techniques that automate site detection. In

contrast, countries that depend on ad hoc data acquisition tend to use LiDAR at a more localized scale, focusing on detailed analyses of individual sites or smaller portions of the landscape. These studies often investigate multiple aspects of the sites rather than concentrating solely on specific site typologies. The uneven availability of LiDAR data shapes research strategies and creates disparities in its use across the Mediterranean. This session aims to explore how the quality and accessibility of various LiDAR datasets influence regional research priorities. We welcome contributions on a range of topics, including methodological approaches such as the implementation of machine learning or addressing the challenges of filtering data in densely vegetated areas, as well as specific case studies and broader reflections on how LiDAR is shaping research and cultural heritage management in different countries. Our goal is to foster dialogue among researchers, encouraging critical reflection on how LiDAR is reshaping traditional archaeological questions associated with landscape archaeology and driving new research directions in the Mediterranean context.

CONTRIBUTION ABSTRACTS

14. POTENTIAL AND LIMITATIONS OF LIDAR FOR IDENTIFYING SMALL-SCALE MEGALITHIC STRUCTURES. THE CASE STUDY OF FONELAS (GRANADA, SPAIN)

**Contribution format:** Oral  
**Contribution authors:** Carolina Cabrero (University of Granada)

The necropolises of FoneLas are the main preserved group of the megalithic complex of the valley of the Fardes River, in the northeast of the province of Granada (Andalusia). This group, together with others such as the Gor River or Pasillo de Tabernas, is one of the main groups that compose the ‘Megalithic Phenomenon of the Southeast of the Iberian Peninsula’, characterized by a very high density of megaliths per km2, generally of small size (1-2 m long in average) and very variable typologies. This great variability is the result of the wide time range of construction of the megaliths between the Late Neolithic and the Late Copper Age (IV-III millennium BC), with frequent reuse in the Bronze Age (II millennium BC). A series of new megaliths were documented in 2022, revealing the presence of numerous previously unidentified burial sites in the area, including within already surveyed terrain. For this reason, a new and systematic survey of the area was planned for 2024, consisting of a digital terrain analysis using DTMs derived from LiDAR data to identify potential megalithic structures, followed by a traditional surface survey to verify these locations. The analysis of DTMs based on LiDAR data led to the identification of 40 anomalies, while field verification allowed 20 of them (50%) to be classified as positive. These include 13 tumuli, 3 orthostatic structures, 3 undefined structures, and 1 plundered chamber negative. In the absence of further geophysical work to verify the identified tumuli, this study helps to delineate the real possibilities and limitations of LiDAR in identifying small-scale structures, while also emphasizing the need for ground-truthing to validate the data.

111. A BOOST FROM THE AIR: LIDAR AND THE IRON AGE IN THE EBRO AND DOURO BASINS (NORTHERN SPAIN)

**Contribution format:** Oral  
**Contribution authors:** Andrea Solana-Muñoz (Institute of Heritage Sciences, Spanish National Research Council (INCIPIT-CSIC))

This proposal is based on my doctoral thesis project, which aims to analyse the historical sequence of the Iron Age (8th-2nd centuries B.C.E.) in the Upper-Middle Ebro and Upper Douro basins (Northern Spain). One of the characteristics of this study area is the fragmentation and scarcity of archaeological information on this period, as well as the absence of studies that relate the different sites to each other and their surroundings. To overcome these limitations, in this project I approach the archaeological record from the theoretical-methodological framework of Landscape Archaeology, including the use of GIS and LiDAR products or derivatives. LiDAR datasets are widely available and open access in Spain thanks to the efforts of the National Geographic Institute. Despite the availability of these datasets, their archaeological application has been limited in the study area. Some preliminary results of its application as part of my doctoral project on Iron Age landscapes have been. 1. The identification of new archaeological sites thanks to remote sensing, which were later verified through archaeological prospections on the ground. 2. The improved characterisation of some sites already catalogued in the regional archaeological inventories. 3. Obtaining quantitative information to analyse the monumentality of the fortified sites and the effort invested in their construction, which allows us to approach social variables of the Iron Age communities. 4. Obtaining volumetric information to differentiate defensive elements from recent agricultural terraces, whose morphology generated interpretative errors in the location and interpretation of archaeological sites. In this paper, I discuss the results obtained in my on-going investigation to reflect the potential of LiDAR datasets for the archaeological analysis of Iron Age landscapes, as well as the possibilities it has to overcome interpretative problems derived from the morphological characteristics of some Mediterranean landscapes.



2429. ASSESSING THE POTENTIAL OF AIRBORNE LIDAR TO UNVEIL ROMAN LANDSCAPES OF RESOURCE EXPLOITATION IN THE WESTERN IBERIAN PENINSULA

Contribution format: Oral  
Contribution authors: Gil Vilarinho (University of Evora)

The exploitation of resources has perhaps been the most conspicuous aspect of the relationship human communities have with the surrounding natural environments. The Iberian Peninsula boasts significant natural resources known and exploited since prehistory. The Roman conquest, however, triggered a new impetus for exploiting these resources. The demand for ornamental stones, namely marble, and gold produced an expressive development of the respective extractive undertakings, frequently resulting in a significant impact on the landscape. Although the importance of these activities and their subsisting remains have been partly noted and there has been an increasing academic interest in this topic, in the western Iberian Peninsula, an area largely corresponding to the Roman province of Lusitania, the existing evidence remains largely undocumented. Recently, there has been increasing accessibility to equipment and geospatial datasets, particularly airborne LiDAR, which allows not only the detection of most of the traces related to these extracting activities but also, on a wider scale, to analyse whole exploitation complexes and even landscapes that are otherwise hardly perceived. Having Central Portugal as a case study region and following a comprehensive methodological approach, this paper explores the potential and constraints of airborne LiDAR surveys to identify and map Roman stone quarries and gold mining areas. Drawing on publicly available LiDAR datasets, this study also explores how different sources and data quality influence the models obtained and the interpretive process. The results analysed revealed a distinct picture for each of these resources, yielding significant results and presenting, therefore, a great potential for the study of Roman gold mining landscapes, while, contrastingly, the take on stone quarries was hindered by several limitations. Ultimately, this paper stresses the significant potential of LiDAR data for the archaeological investigation in a region where remote sensing techniques have been largely overlooked.

1386. INTRICATE PALIMPSESTS. DISENTANGLE THE COMPLEXITY OF (SOME) MEDITERRANEAN CULTURAL LANDSCAPES THROUGH LIDAR AND OTHER TECHNIQUES

Contribution format: Oral  
Contribution authors: Giacomo Vinci – Federica Vanzani – Alessandro Fontana (University of Padova)

A recently published systematic review of international studies on the application of LiDAR in archaeology over the past 20 years has provided valuable insights into its impact. The findings reveal that, so far, LiDAR applications in Mediterranean contexts have yielded relatively limited results (Vinci et al., 2024). One key factor behind this is the prolonged and intensive occupation of the same areas, making many Mediterranean landscapes intricate palimpsests that are difficult to disentangle. However, integrating high-resolution LiDAR data with other techniques, particularly the analysis of historical cartography and geoarchaeological fieldwork, can significantly advance our understanding of landscape evolution. Our study focuses on the Northern Adriatic, where high-resolution open-access LiDAR data have been analyzed in both the alluvial plains of Friuli and the hilly Karst region, revealing previously unknown cultural landscapes. One notable case from the Friulian coastal plain illustrates how the combination of remote sensing and paleoecological research, through pollen analysis of samples taken from peat-filled deposits, has uncovered a type of evidence previously unknown in the Roman world and has documented significant impact on the rural environment of that time. To expand this perspective, we compare these results with recent drone-based, high-resolution LiDAR acquisitions from the volcanic island of Ustica (Sicily). This comparative analysis highlights methodological challenges that reinforce the need for a multi-proxy, multi-temporal, and multi-scale approach to LiDAR-based research. Such a framework is essential for fully understanding land-use dynamics and long-term landscape transformations across different historical periods.

1212. MOVING BETWEEN SCALES AND FEATURE TYPES IN ARCHAEOLOGICAL LIDAR

Contribution format: Oral  
Contribution authors: Giacomo Fontana (Texas Tech University)

The Mediterranean region has a strong tradition of landscape archaeology. However, research in this field has often focused on coastal and lowland areas, frequently overlooking other environments such as mountainous and forested landscapes. Lidar presents a valuable opportunity to explore these historically understudied regions. This paper evaluates the challenges and potential of low-resolution but large-scale lidar in Mediterranean landscape archaeology, particularly in mountain environments, and compares its effectiveness with high-resolution, ad hoc lidar surveys conducted for specific sites. Drawing on insights from the Ancient Hillforts Survey, which analyzed 15,296 km<sup>2</sup> in south-central Italy, the study assesses the variability in site visibility across different lidar datasets. Specifically, it compares open-source, low-resolution lidar (average of 1 pt/m<sup>2</sup>) with high-resolution (up to 550 pts/m<sup>2</sup>) ad hoc lidar surveys conducted on similar sites. The findings highlight significant discrepancies in the identification and mapping of different site types, both within and across these datasets. Recognizing the

implications of this variability for spatial analysis, the paper explores the use of sampling areas as a strategy to mitigate potential biases. This approach seeks to refine methodologies for interpreting lidar data in archaeological research, emphasizing the need for nuanced analytical frameworks that account for differences in resolution and environmental context. At the same time, the study underscores the effectiveness of low-resolution lidar in addressing biases in landscape archaeology and in providing more representative datasets of site distributions.

2487. RECENT LIDAR FINDS FROM THE TERRITORIES OF BULGARIA

Contribution format: Oral  
Contribution authors: Todor Boyadzhiev (Veliko Tarnovo University)

The application of LiDAR technology in archaeological research has significantly expanded our ability to detect and interpret hidden structures across diverse landscapes. This contribution presents several notable discoveries made through recent LiDAR surveys in Bulgaria, highlighting both newly identified and confirmed archaeological features. One of the most significant findings includes a cluster of multiple burial mounds near the Sandanski region, which suggests a previously unknown necropolis with potential links to Thracian or earlier cultures. Additionally, unexplained terraces have been identified near officially registered archaeological sites in the Velinograd area. These terraces, whose purpose remains uncertain, may indicate previously unknown settlement or other type of activities. Furthermore, LiDAR imaging has allowed us to confirm the existence of a secondary defensive wall previously documented in the 19th century but later lost to historical records. This rediscovery not only validates historical accounts but also enhances our understanding of the site’s fortification system. In the Momchilgrad region, a previously unknown secondary wall of a medieval fortress was revealed, indicating a more complex defensive layout than previously assumed. Our analysis has confirmed the number and layout of defensive towers on a Roman fortification, providing new insights into its architectural and strategic planning. These findings underscore the critical role of LiDAR in advancing archaeological knowledge, offering a non-invasive means of uncovering lost or overlooked structures. The results of this study contribute to a more nuanced understanding of Bulgaria’s archaeological landscape and highlight the potential for future LiDAR applications in the region.

2056. LIDAR AND REMOTE SENSING IN CRNOBUKI AND DEMIR KAPIJA

Contribution format: Oral  
Contribution authors: Byron Smith – Nick Angeloff (Cal Poly Humboldt) – Rebekka Knierim (SWCA) – Jessica Bedell (Cal Poly Humboldt)

Cal Poly Humboldt, Museum Bitola, and Institute Prilip are utilizing both state provided Lidar data and high-resolution project flown Lidar data to gain a comprehensive understanding of the Paeonian and Pelagonian regions of ancient Macedonia at varying resolutions. Macedonia has regional point cloud data available and both these projects are currently utilizing this data to understand the broader landscape and context of our discrete project areas. In addition, Cal Poly Humboldt is conducting Lidar surveys of discrete areas associated with our direct project areas to provide higher resolution data and incorporating the use of photogrammetry and ground penetrating radar to further refine our remote sensing data associated with portions of our larger scale project areas. By utilizing the available datasets, we have been able to enrich contextual understandings that we would not have been available by utilizing a mutually exclusive framework. Of particular importance is utilizing the existing state provided Lidar sets in point cloud format to inform and target our use of higher resolution drone Lidar. These efforts have allowed us to focus our work on those areas that would benefit more from the archaeological resources of Macedonia as opposed to spending time and scarce resources utilizing more traditional methods. In Demir Kapija we faced challenges associated with dense, low lying vegetation and have developed post processing methods that allow us to alleviate much of the background noise resulting in high quality data, and in Crnobuki we found that the incorporation of photogrammetry and GPR enhanced our Lidar data resulting in an agglomerated data set that significantly improved our field methods and allowed for more effective use of scarce resources and time. Both are presented here to foster discussion and allow for advice of other experts to further refine our methods to our mutual benefit.

1751. MAQUIS, MARBLE, AND MACHINE LEARNING: CURRENT AND FUTURE APPROACHES TO CLASSIFICATION OF UAV LIDAR IN MEDITERRANEAN ARCHAEOLOGY

Contribution format: Oral  
Contribution authors: Hallvard Indgjerd (Museum of Cultural History, University of Oslo) – Evan Levine (University of Copenhagen)

The use of UAV lidar for low-altitude, high-resolution topographic survey is becoming increasingly common in archaeological field research, offering archaeologists direct control over the collection of lidar data. However, the processing workflows and classification algorithms most commonly employed by archaeologist were developed



for higher altitude, lower resolution airborne laser scanning (ALS), and are not optimized for the higher resolution topographic data collected by UAV lidar platforms. These algorithms are also unsuitable for Mediterranean vegetation profiles and are not designed to specifically target archaeological remains. This paper evaluates existing open algorithms and processing methodologies for point cloud classification with a focus on their ability to discern archaeologically relevant features in low altitude, high resolution lidar datasets. The case studies use data collected at ancient marble quarries on the Cycladic island of Naxos and the funerary landscape in Mølen, Norway, which present a diverse range of vegetation types, complex topography, and varied anthropic features. Looking ahead, we explore new advances in the use of deep learning for the development of semi-supervised classification models. Could the fast-paced development in machine learning lead to the creation of classifiers specifically targeted for Mediterranean landscapes and the documentation of archaeological features? We discuss possible workflows and compare test results of classification models produced from semi-supervised deep learning models to industry standard classification algorithms, exploring the strengths, weaknesses, and potential for advances in point cloud classification for archaeological enquiry. In so doing, we argue for the need to develop analytical tools designed specifically for the high resolution datasets produced by low-altitude UAV data collection in the context of archaeological feature documentation.

2252. ARCHAEOLOGICAL LIDAR APPLICATIONS IN GREECE: SUMMARY AND PROSPECTS

**Contribution format:** Oral  
**Contribution authors:** Alex Knodell (Carleton College)

This paper provides a summary of recent archaeological applications of lidar-based remote sensing in Greece. It reviews the (relatively few) examples of published research on this topic, and summarizes a variety of recent and ongoing work that was presented at a conference organized at the American School of Classical Studies at Athens in 2024. Lidar data is not publicly available in Greece, with the exception of a few datasets covering specific areas. Archaeological lidar applications are therefore dependent on commissioning flights by private companies or independent data collection, usually via the use of drones. There is therefore a high-threshold for entry, in terms of access to funds, equipment, and expertise, meaning that lidar may not be well suited to all research questions and projects. That said, in some contexts, especially projects conceived at the landscape and regional scale, lidar can be a tremendous resource in feature detection, classification, and documenting human-modified landscapes over large areas. This paper aims to highlight some broad trends, themes of interest, and concerns for archaeologists interested in archaeological lidar and other, related forms of remote sensing in Greece. It also provides some recommendations concerning research design for researchers interested in archaeological lidar in comparable contexts elsewhere in the Mediterranean.

113 ALL FOR ONE, UNDERSTAND HUMAN AND NON-HUMAN RELATIONSHIPS IN COASTAL AND ISLAND CONTEXTS FROM AN INTERDISCIPLINARY PERSPECTIVE

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Regular session  
**Session keywords:** Zooarchaeology, Archaeometry,, Biomolecular, Isotope, Coastal and Island Archaeology  
**Session organisers:** Simon-Pierre Gilson – Aitor Brito-Mayor (Universidad de Las Palmas de Gran Canaria) – Mauricio Marciales Daza (Universität Tübingen)

SESSION ABSTRACT

Coastal and island regions, with their distinct ecological and cultural dynamics, offer unparalleled opportunities to study human-animal relationships, past ecologies, and recent animal evolution. These unique contexts are critical for exploring how human and non-human histories have been shaped by the interplay of terrestrial and marine environments, making them a priority for archaeological research. From an interdisciplinary perspective, the study of non-human remains in these regions has led us to identify sensitive management of animal husbandry and wildlife exploitation in the past. Integrating Zooarchaeology (along with its subfields) and Archaeometry (employing techniques such as microscopic analysis, biomarker studies, isotope analysis, paleoproteomics, or aDNA) has significantly advanced our understanding of these issues. However, a lack of platforms for cross-disciplinary dialogue has often led to fragmented knowledge and limited integration of findings. This issue is compounded when researchers face interdisciplinary challenges and struggle between strongly different theoretical approaches. This session seeks to prioritize discussing human and non-human relationships in coastal and island regions while fostering dialogue among specialists from diverse disciplines. Presentations will focus on methods, limitations, and how challenges were addressed through integrating multiple methodologies. By emphasizing methodological synthesis in these critical regions, the session aims to advance a deeper

understanding of the dynamic relationships between humans, animals, and environments in coastal and island contexts.

CONTRIBUTION ABSTRACTS

635. CHANGES IN COASTAL SUBSISTENCE STRATEGIES IN WALLACEA FROM THE PLEISTOCENE TO THE HOLOCENE

**Contribution format:** Oral  
**Contribution authors:** Hendri Kaharudin – Sue O’Connor (The Australian National University)

Wallacea, a biogeographical transition zone between Asia and Australia, provides a critical context for understanding coastal subsistence strategies from the Pleistocene to the Holocene. The region has been inhabited by early modern humans since at least 50,000 years ago. Archaeological evidence reveals how early inhabitants adapted to dynamic marine environments through diverse resource exploitation strategies, including shellfish gathering, reef fishing, and deep-sea resource utilization. These adaptive practices emerged in response to complex environmental shifts, sea-level fluctuations, and inter-island mobility. Technological innovations and socio-cultural adaptations enabled human resilience in fluctuating coastal ecosystems, with specialized fishing tools and mobility strategies facilitating survival across this fragmented seascape. To examine variations in coastal subsistence strategies and transformations in lifeways from the Pleistocene to the Holocene, we excavated four cave sites on ecologically distinct islands, documenting exploited faunal remains throughout periods of occupation. We also analyzed and discussed existing archaeological assemblages alongside previously reported coastal sites. By integrating archaeological, paleoenvironmental, and ethnographic data, this research reconstructs long-term human-environment interactions, illuminating the mechanisms of human adaptation in challenging maritime landscapes. The study offers crucial insights into marine resource utilization, migration patterns, and the development of coastal economies in island Southeast Asia, demonstrating how early populations navigated and survived environmental transformations through strategic resource management and technological innovation.

959. HUMAN-HARBOUR PORPOISE INTERACTIONS IN THE BALTIC SEA FROM PREHISTORY TO MODERNITY

**Contribution format:** Oral  
**Contribution authors:** Magie Aiken (Swedish Museum of Natural History | Trent University) – Youri Van Den Hurk (University of Bergen) – Pia Eriksson – Julia Carlström (Swedish Museum of Natural History)

Humans have interacted with harbour porpoises (*Phocoena phocoena*) in the Baltic Sea region since the initial human settlement of the area approximately 9,000 years ago. Over this time, anthropogenic impacts have reduced the Baltic Proper population, leading to its status as critically endangered and subject to intensive, multinational conservation efforts. This study traces human interactions with harbour porpoises in the Baltic Sea region from the Mesolithic through to the Modern period through a multidisciplinary lens, integrating zooarchaeological data, medieval manuscripts, historical accounts, and archival Swedish newspapers. Zooarchaeological evidence suggests harbour porpoises were actively exploited during the Mesolithic and Neolithic periods, likely for sustenance. By the Medieval period, however, the symbolic value of harbour porpoises appears to surpass its utilitarian role, with archaeological evidence indicating its growing social significance. Historical zoological reports and travel accounts from the 19th century show a development of scientific understanding of the species. Swedish archival newspapers offer detailed accounts of harbour porpoises observations and interactions, presenting perspectives ranging from being enemies of the fisheries to being regarded as playful curiosities. In the latter half of the 20th century, the development of ecological concerns shifted the focus toward protecting the Baltic Proper harbour porpoise. Through this study, we can see the transformation in human-animal relationships from primary substance based in the prehistoric to a species of symbolic (and monetary) importance, and later the subject of scientific curiosity and public interest. By synthesizing (zoo)archaeological, historical, and documentary evidence, this study traces long-term human interactions with harbour porpoises and contributes to broader discussions on the complexities of relationships with non-human species in coastal contexts and the importance of understanding long-term interactions for modern conservation.

2379. TRACING MOBILITY AND WATER SOURCING IN BRONZE AGE MENORCA THROUGH ISOTOPE ANALYSIS IN HUMAN AND FAUNA REMAINS

**Contribution format:** Oral  
**Contribution authors:** Mauricio Marciales – Marta Díaz-Zorita Bonilla (University of Tübingen) – Auxilio Moreno (University of Granada) – Monice Timm – Dobereine. Chala-Aldana (University of Tübingen) – Damiá Ramis (Museu de Menorca, Menorca, Balearic Islands) – Antoni



Ferrer (Institut Menorquí d’Estudis. Maó. Balearic Islands) – Maria José León (Museu de Ciutadella, Menorca, Balearic Islands) – Antonio Delgado (Instituto Andaluz de Ciencias de la Tierra (CSIC-UGR): Armilla)

Understanding how humans and animals moved across landscapes is crucial for reconstructing past societies, and isotope analysis provides a powerful tool for tracking these patterns. This is especially important in island environments, where geographic isolation, resource limitations, and distinct ecological conditions shape mobility and subsistence strategies. Our study integrates archaeology, archaeometry, and animal ecology to explore human-animal movement and resource use in Bronze and Iron Age Menorca through oxygen and strontium isotope analysis. The unique environmental conditions of Menorca, including its “limited” freshwater sources, low-altitude landscape, and diverse geological formation, provide an ideal context for investigating patterns of mobility and their effects on ancient island communities. To explore these dynamics, we examine oxygen isotope data from cattle, caprines, and suids recovered from five archaeological sites—Binipati Nou, Cala Blanca, Clariana, Cornia Nou, and Cala Morell—spanning the Bronze Age to the Iron Age. To gain further insight into human movement, we compare these findings with oxygen and strontium isotopic data from human remains excavated at Biniadrís Cave, a funerary cave in the south eas. part of the island with one of the longest utilization periods in the island, dating from ca.1400 to ca 500 BC. Preliminary results from the fauna indicate shifts in husbandry, trade networks, and settlement organization, reflecting broader social and economic changes. By comparing isotopic data, we investigate the origins of individuals not only buried in Biniadrís Cave, but also from the communities these fauna had direct contact from, providing a deeper understanding of mobility and human-environment interactions. Our analysis reveals seasonal movement patterns, livestock management strategies, and water resource use, offering valuable insights into past societies.

252. COMPLETE MITOCHONDRIAL GENOMES PROVIDE EVIDENCE ON THE GEOGRAPHICAL ORIGIN AND THE TEMPORAL EVOLUTION OF ANCIENT GOATS FROM CANARY ISLANDS

**Contribution format:** Oral  
**Contribution authors:** Clara Díaz Pérez (Universidad de La Laguna) – Kevin Daly (UCD School of Agriculture and Food Science, University College Dublin) – Aito. Brito-Mayo. – Alejandra C. Ordóñez (Universidad de Las Palmas de Gran Canaria) – Javie. G. Serrano (Universidad de La Laguna) – Jonatha. Santan. (Universidad de Las Palmas de Gran Canaria) – Ros. Frege. (Universidad de La Laguna)

Archaeological and linguistic evidence have confirmed the North African origin of the indigenous people of the Canary Islands. Additionally, radiocarbon data has shown that, excluding the temporal Roman purple dye workshop exploited in the islet of Lobos around the 2 nd century BC, the permanent settlement of the archipelago occurred at the beginning of the common era and lasted until the European colonization in the 15 th century. An alternative way of obtaining information on the geographic origin of populations is by analyzing their domestic species. One of the most abundant domesticates in the indigenous archaeological records are goats, providing a great opportunity to explore its origin and evolution in the islands. In this study, we apply for the first time next-generation sequencing to the recovery of whole mitochondrial DNA genomes of ancient goats from the Canaries (n=75), including animals associated to the Roman workshop, the indigenous occupation of archipelago and the colonial society. Phylogenetic analysis of the Canarian ancient goat mitogenomes indicates they belong to two different clades: A2a and the newly defined A8. Both have been observed mostly in present-day goats from the Middle East and North Africa, confirming previous results. Regarding the Roman goats, individuals from Lobos belong to the same clades as the indigenous ones. The sharing of specific haplotypes by Roman and indigenous goats from the islands closer to the African continent suggests that both settlements might have overlapped, leading to the movement of goats from the neighboring islands to Lobos. All historical samples fall within A8, pointing to the continuing use of indigenous herds up to the 18 th century.

2257. ANIMALS OF THE MAJOS (FUERTEVENTURA, CANARY ISLANDS): ZOOARCHAEOLOGICAL AND ISOTOPIC APPROACH TO SUBSISTENCE ON A DESERT-LIKE ISLAND

**Contribution format:** Oral  
**Contribution authors:** Aitor Brito-Mayor – Simon Gilson (University of Las Palmas) – Marta Moreno-García (Institute of History, CSIC) – Elías Sánchez-Cañadillas (University of Las Palmas) – Eneko Iriarte (University of Burgos) – Marta Díaz-Zorita Bonilla (University of Tübingen) – Jonathan Santana (University of Las Palmas)

This study examines human-animal interactions among the Majos, the ancient inhabitants of Fuerteventura (Canary Islands, Spain), in order to better understand their adaptive strategies in an arid and isolated environment. Ethnohistorical and historical sources suggest that their subsistence was primarily based on animal husbandry; however, few archaeological sites have been analyzed using a zooarchaeological approach to validate this claim.

Preliminary isotopic analyses of human remains indicate a significant intake of marine resources, highlighting the need to reassess these contrasting subsistence models with additional evidence. To address this, we conducted zooarchaeological and isotopic analyses ( $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$ ) on faunal remains from three archaeological sites on Fuerteventura. The results show an abundance of domestic, wild, and marine fauna at all sites, suggesting a more diversified subsistence strategy than previously assumed. In addition, the isotopic values of terrestrial faunal remains exhibit exceptionally high nitrogen levels and positive carbon values, probably reflecting the impact of Fuerteventura’s arid environment and lack of significant mountainous areas on isotopic baselines. This research highlights the need to integrate human and faunal remains in isotopic studies to elucidate the complex interaction between environmental factors, subsistence strategies, and isotopic signatures in archaeological contexts.

1199. KNOW YOUR FISH TO UNDERSTAND YOUR DIET. ISOTOPIC AND ICTHYOARCHAEOLOGIC STUD-IES OF THE CANARY ISLANDS PARROTFISH

**Contribution format:** Oral  
**Contribution authors:** Simon-Pierre Gilson – Aitor Brito-Mayor – Elías Sánchez-Cañadillas (Universidad de Las Palmas de Gran Canaria) – Eneko Iriarte (Universidad de Burgos) – Javier Cruz Viera – Jonathan Santana (Universidad de Las Palmas de Gran Canaria)

The faunal remains associated with marine resources in the Canary Islands have received limited attention, often being overlooked or considered secondary products. Since 2022, the IsoCan project (ERC) has focused on the ichthyoarchaeological remains from several precolonial settlements in the Canary Islands, leading to zooarchaeological studies that provide new insights into the role of marine resources in the diets of indigenous populations. Key findings from this research include the identification of specialized processing sites, such as La Herradura on El Hierro Island, which suggest the processing of fish before transport and distribution. Previous isotopic analyses of human remains have shown a significant contribution of marine resources to the diet of the El Hierro popula-tion. These isotopic values, associated with shell middens on the island, were interpreted as evidence of marine mollusk consumption. However, the ichthyoarchaeological studies emphasize the importance of the Parrotfish (Sparisoma cretense), which accounts for 70 to 80% of the identified fish remains. In the Canary Islands, this fish is predominantly herbivorous. Consequently, the reconstruction of past marine trophic levels using stable isotopes may challenge the interpretation of the significance of mollusks and underscore the importance of fish, particularly the parrotfish.

114 EARLY CAREER ARCHAEOLOGIST WORKSHOP: HOW TO BUILD AN INTERNA-TIONAL CAREER?

**Session theme:** 4. De nobis fabula narratur: archaeological practice and a profession in flux  
**Session format:** Workshop  
**Session keywords:** Career planning, Professional development, International careers  
**Session organisers:** Jason Cohen (University College London | ECA Community Co-Chair) – Maxime Brami (Pre- and Protohistoric Archaeology, JGU Mainz | ECA Community Chairman Emeritus) – Florian Helmecke (Leiden University | ECA Community Co-Chair) – Nicola Scheyhing (Independet Researcher | Kulturbetriebe Burgenlandkreis GmbH | ECA Community Co-Chair)  
**Session speakers:** Laura Coltofean-Arizancu (German Archaeological Institute, Romano-Germanic Commission) – Maria Mina (University of the Aegean) – Sofia Fonseca (Teiduma Consultancy on Heritage, Culture and Sustainability) – Sabina Cveček (Field Museum of Natural History Chicago & Austrian Academy of Sciences) – Christina Tsoraki (University of Leicester) – Daniela Hofmann (University of Bergen) – Katherine Kanne (University College Dublin)

SESSION ABSTRACT

Early career archaeologists (ECAs) are increasingly expected to be mobile and actively seek international training, fieldwork, funding, and collaboration opportunities. However, while there are many paths to building an international career in academia, heritage and contract archaeology, or GLAM (galleries, libraries, archives, and museums), the journey is far from straightforward. Moving from one academic system to another can feel daunting, due to differing professional standards, job requirements, and language barriers. Moreover, navigating the complexities of diverse standards of recruitment, academic titling, and career progression paths makes career planning difficult. In Europe, these typically vary from country to country, and sometimes even from faculty to faculty. International mobility is even more challenging for professional archaeologists who work outside of



academia, whose skills are not easily recognized in other countries. In essence, there is no clear outline of an international pathway to secure (permanent) employment, despite increasingly transnational funding schemes within the field as well as a genuine will to better collaborate across borders. This workshop, organized by the Early Career Archaeologists (ECA) Community of the EAA, will explore diverse international career pathways, including the benefits and challenges they present. Our panel will discuss how early career archaeologists can game the system to advance their careers in the most effective way. Topics to be considered include.

- When is it worth moving abroad and what funding opportunities are available?
- What are the differences between academic systems in Europe (e.g. accreditation, tenure track, remuneration, recognition)?
- What are the international employment options for archaeologists in heritage, contract archaeology, and GLAM?
- Is pursuing a career outside of Europe worthwhile?

115 EAA COMMUNITY FOR CLIMATE CHANGE AND HERITAGE (CCH) ROUNDTABLE

**Session theme:** 7. Climate Change in the Past and Present  
**Session format:** Round table  
**Session keywords:** Heritage, Climate Change, Communication, Policy, Sustainability  
**Session organisers:** Peter F Biehl (University of California Santa Cruz) – Vibeke Vandrup Marten (Norwegian Institute for Cultural Heritage Research (NIKU))

SESSION ABSTRACT

Climate Change has impacted human life and its material culture and environment in the past and is transforming archaeological practice and the management of our heritage in the present and will do so even more in the future. Although we have made progress in formulating important statements including far reaching recommendations for mitigation and adaptation of our practices as archaeologists and heritage managers (<https://www.e-a-a.org/2021Statement>), SACC 2021 (<https://www.jma.uni-kiel.de/en/research-projects/sacc/sacc-statement-2021.pdf>), and the SAA 2022 (Microsoft Word - SAA Statement on Climate Change and Cultural Heritage (windows.net) we still struggle with funding our work, embedding and sustaining it with national and international policies and communicate and apply our findings and solutions beyond the professional communities to the public. This ninth roundtable organized by the EAA Community for Climate Change and Heritage (CCH) builds on the success of the previous ones and hopes to focus this year on: (1) funding, (2) policies, (3) sustainability, and (4) communication. We are inviting representatives of key archaeology associations as well as specialists in climate change and heritage research and policy as a sounding board for the CCH activities. The roundtable session will provide an update on the work done in and by the community since the previous meeting and discuss the results of a survey about opportunities and challenges as well as suggestions for next steps for the Community to grow and extend its network and activities to help adapt to a global climate crisis, find good solutions for adaptation and mitigation and their communication to the professional community and the public, and thus increase heritage and societal resilience.

117 BEYOND DATA: TOWARDS STANDARDIZED METHODS TO IDENTIFY ARCHAEOLOGICAL MATERIAL

**Session theme:** 3. Exploring methods in research, education and communication  
**Session format:** Discussion session  
**Session keywords:** persistent identifiers, archaeological material, collection management, archive, research data management, samples  
**Session organisers:** Thomas Rose (Forschungsbereich Archäometallurgie, Deutsches Bergbau-Museum Bochum, Bochum) – David Novák (Institute of Archaeology of the CAS, Prague)

SESSION ABSTRACT

Managing and archiving archaeological data is a long-term challenge in archaeology. For research on excavated remains, it is pivotal to know where they are stored and have access to basic information about them. Persistent identifiers (PIDs) offer this functionality in a digitized world. PIDs are unique identifiers that are permanently and unambiguously linked to research outputs, ensuring they can be reliably retrieved and referenced over time. Each PID is associated with prescribed information (metadata) about an output such that it can be comprehensively described, increasing its FAIRness (findability, accessibility, interoperability, and reusability) and openness. The

International Generic Sample Number (IGSN ID) is the first ever PID for physical samples—including all types of archaeological material—and is the global standard for their persistent identification. This session highlights the importance and value of PIDs for archaeological material. No matter your level of knowledge about PIDs and metadata, it is open to anyone with an interest in describing archaeological material in a standardized way or registering PIDs for their archaeological material. The session is particularly relevant to those managing archaeology collections and records. To the above end, we invite papers that offer insights on:

- \* Experiences of PID adoption for archaeological material, including from those in process of adoption.
- \* Unique/interesting use cases of (un)successful management of archaeological material, including using PIDs.
- \* Efforts to develop standardized (metadata) descriptions for archaeological material or vocabularies/ontologies for material properties.

Lots of time will be provided for discussion around the specific challenges that archaeologists face when it comes to managing and describing archaeological material, and the barriers to adopting PIDs. This session is organized by the IGSN Archaeology Community of Practice. Since March 2022, this group of archaeologists has met monthly to promote adoption of PIDs and develop a metadata profile for archaeological material.

CONTRIBUTION ABSTRACTS

1381. WITH A TROWEL IN HAND AND A DATABASE IN BACKPACK: ARCHAEOLOGY 2.0

**Contribution format:** Oral  
**Contribution authors:** Katarzyna Langenegger (Digital Humanities, University of Bern | Institute of Archaeological Sciences University of Bern)

Archaeology gains meaning through data describing artefacts and their contexts. However, the increasing volume of data in archaeological projects poses significant challenges, particularly in contemporary archaeology, where efficient storage and analysis are essential. Since the 1980s, relational databases have been widely employed as documentation tools. These databases are often highly customised to meet specific research questions, system requirements, budgets, and levels of user expertise. While customisation shapes database structures to suit needs, it often compromises sustainability, as many are developed for short-term projects and become unsupported once funding ends. This results in a fragmented data landscape, making long-term research and data integration more difficult. Additional challenges arise from the diverse data types—such as text, photographs, and GIS data—and from unexpected findings that may not conform to the rigid structures of relational models. The GeWis project at the University of Bern addresses these challenges with a flexible and sustainable graph database designed for archaeology. It supports various data types, including texts, images, GIS data, and 3D models, adapting to unexpected discoveries and complex relationships. By adhering to standards such as CIDOC-CRM and Open Research Data principles, GeWis ensures interoperability, machine readability, and long-term preservation. ETL processes integrate legacy data from systems like FileMaker (Sirkeli Höyük, Gonur Depe), bridging documentation gaps. A user-friendly, narrative-driven interface facilitates data entry and analysis, enabling users of different technical backgrounds to track artefacts from discovery to publication efficiently. This innovative approach enhances data integration, streamlines collaborative workflows, and ensures the sustainability of archaeological data for future research. The presentation will outline the development of the graph database and its potential to transform archaeological data management. In particular, the steps involved in setting up the ontology with corresponding metadata are presented.

806. ENABLING AN END-TO-END SAMPLE WORKFLOW FROM COLLECTION, TO MANAGEMENT, TO ARCHIVING, THROUGH RESEARCH TOOL INTEROPERABILITY

**Contribution format:** Oral  
**Contribution authors:** Vaida Plankyte – Rory Macneil (RSpace (ResearchSpace))

We present a case study of our end-to-end, integrated research data management workflow for material samples. We integrate three tools, covering sample collection, processing, storage, and archiving. - Fieldmark, an offline sample metadata collection tool - RSpace, an ELN and sample management system and RDM platform - Generalist and domain-specific data repositorie. The presentation will also explain how consistent use of IGSN IDs (the material sample persistent identifier) in every tool and at every stage of the process acts as an integrating force and enhances data discovery. We will also cover planned support for PIDINST. We wish to present both practical recommendations, as well as higher-level reflections on how to approach thinking and developing tool interoperability at an institution, and its benefits for researchers and RDM as a whole. In the course of implementing this workflow, we have been exploring how to best design metadata and data flows across tools that are used in different stages of the research process. These tools naturally have different requirements, focuses, and functionality from each other. In our presentation we will address lessons learned about the following questions. - How to facilitate researcher processes by integrating tools, ensuring traceability and no metadata loss for sample data? - What considerations need to be taken into account by institutions and tool developers to design flexible solutions



that satisfy user needs. We hope that attendees will gain a strengthened mental model of how their tools ecosystem could interact, and how to approach building greater interoperability in their workflows.

492. IMPLEMENTATION OF PERSISTENT IDENTIFIERS IN THE ARCHAEOLOGICAL MAP OF THE CZECH REPUBLIC: CHALLENGES, DECISIONS, AND BENEFITS

Contribution format: Oral  
Contribution authors: David Novak (Institute of Archaeology of the CAS, Prague)

Since 2016, archaeological fieldwork data in the Czech Republic has been integrated into a unified information system, the Archaeological Map of the Czech Republic (AMCR). This system consolidates tools for managing archaeological fieldwork administration and serves as a digital repository for related research data. Subsequently, additional application modules have been developed, either directly integrated into AMCR or incorporated into the broader research infrastructure of the Archaeological Information System of the Czech Republic (AIS CR). As part of the ongoing adaptation of the AMCR repository to international best practice, various types of persistent identifiers (PIDs) were implemented in 2025. These include DOI for documentation, ORCID and Wikidata for users and other individuals, and IGSN for archaeological finds and sites. This paper presents a practical case study of the implementation process, highlighting the challenges, key decisions and resulting benefits for users. In addition, the paper emphasises the importance of viewing PIDs as an integral part of a wider network of digital records relating to the archaeological heritage. Within AMCR, the standard assignment of PIDs has unlocked hundreds of thousands of digital objects, making them more accessible to users, ensuring their consistent and persistent identification, and enabling their use in a variety of contexts. This includes assessing the impact of archaeological research and giving appropriate credit to individual researchers throughout the research process.

1542. IMPLEMENTING AND USING PERMANENT IDS AT THE ADS AND HSDS

Contribution format: Oral  
Contribution authors: Kieron Niven (Archaeology Data Service, University of York)

This paper intends to present and discuss the continuing work being undertaken to develop data standards and structures within the Archaeology Data Service (ADS) and nascent Heritage Science Data Service (HSDS) at the University of York, UK. While the ADS has been preserving and disseminating archaeological data for almost thirty years, the HSDS is currently in its initial set-up phase, working to provide core digital research services as part of the RICHeS programme, the UK’s Research Infrastructure for Conservation and Heritage Science. The nature and structure of archived collections at both the ADS and HSDS will be described with a particular focus on the granularity of data storage and how this relates to the overarching catalogues and metadata specifications being developed for the HSDS. Existing native unique IDs in both services will be discussed, particularly in terms of their relationship to the long-term usage of DOIs and ORCIDs at the ADS. Additionally, IGSNs will be explored in terms of their initial adoption and the mechanisms and workflows available for their creation and inclusion within the various catalogues.

1123. HARVESTING INFORMATION FROM THE PID NETWORK: TERRALID AS CASE STUDY

Contribution format: Oral  
Contribution authors: Thomas Rose – Tim Greifelt – Katrin Westner – Annette Hornschuch – Yiu-Kang Hsu (Leibniz-Forschungsmuseum für Georessourcen/Deutsches Bergbau-Museum Bochum) – Helge Wiethoff (Technische Hochschule Georg Agricola, Bochum) – Sabine Klein (Leibniz-Forschungsmuseum für Georessourcen/Deutsches Bergbau-Museum Bochum | Ruhr-Universität Bochum)

Managing the ever-increasing amount of research data related to archaeological objects requires their organisation as structured information and deposition in repositories and research data infrastructures. Ideally, the data adheres to the FAIR principles. Persistent Identifiers (PIDs) play a pivotal role in this endeavour because they make both, digital and physical objects findable and referenceable. Usually, metadata about the respective object can be retrieved by using its PIDs. For example, bibliographic information of an online publication can be retrieved by using its DOI. Consequently, PIDs are a key element in a federated network of specialised (research) data infrastructures, each maintained by their respective specialists, between which information can freely flow. TerraLID, the emerging research data infrastructure for lead isotope data in archaeology, is no difference. Beyond lead isotope data and their metadata, TerraLID aims to re-use metadata stored in other data infrastructures, such as geographic and chronological gazetteers or associated with IGSN and ORCID IDs and to link to vocabulary entries. Providing key information about the object and its site, IGSN is envisioned to play a central role in the future. The use of PIDs will be actively promoted by TerraLID because harvesting metadata from other services facilitates data entry for the user while ensuring formal validity of metadata, reducing workload for data curation. This contribution will present how TerraLID uses PIDs to enrich its database with information harvested

from other services and keeping its metadata profile interoperable. It further shows how TerraLID places itself as in the PID network by minting PIDs to make its data and vocabularies available to the public and discusses some of the challenges faced and strategies developed to overcome them.

118 ‘PECUNIA NON OLET?’ — ARCHAEOLOGIES OF URBAN WASTE MANAGEMENT

Session theme: 3. Exploring methods in research, education and communication  
Session format: Regular session  
Session keywords: urban archaeology, waste management, rubbish, hinterland, cities, circular economy  
Session organisers: Paul Belford (Heritage Innovation) – Jeroen Bouwmeester (Rijksdienst voor het Cultureel Erfgoed) – Kirstine Haase (Museum Odense)

SESSION ABSTRACT

By its very nature urban archaeology deals with detritus, but the actual management of waste in towns and cities is often overlooked. Any densely populated area will generate large amounts of waste every day. This not only includes human and animal excrement, and rubbish from everyday life, but also waste from the various industrial and artisan activities — from metalworking to pottery manufacture to the production of leather and textiles. Of course one person’s waste is another person’s valuable resource. Metalworking slag is used for road-building; urine is used by fullers and tanners; cesspits are emptied into the rural hinterland to fertilise fields. Slaughtered animals provide food and skin, but also bone to make tools, buttons and other artefacts. Almost all waste eventually served a purpose. In this session we want to look at the archaeological evidence for urban waste management in the past — and to think about some of the lessons we might learn for the ‘circular economies’ of our cities in the future. We invite contributions on any aspect of waste and rubbish in urban contexts. Topics might include: - Recovery, sorting and re-use of waste — what, how, where and who? - The role of waste management in the control of hygiene and disease - Evidence for the regulation of waste processes by municipal authorities — and evidence of transgression and misbehaviour (such as illegal pollution and dumping) - Attempts at pollution control and urban zoning (brewers upstream, tanners downstream) - Paleobotanical and paleobiological markers for sanitation — and the lack of it. - What can the archaeological distribution of waste tell us about urban life. We encourage you to submit papers about rubbish — but not rubbish papers!

CONTRIBUTION ABSTRACTS

1499. JUST WASTE? A CASE STUDY ON THE DEPOSITION OF FAUNAL REMAINS FROM THE SITE OF PISTIROS, BULGARIA

Contribution format: Oral  
Contribution authors: Stella Nikolova – Emil Nankov – Alexey Gotsev (National Archaeological Institute with Museum - Bulgarian Academy of Sciences)

The following paper explores the discarding of food waste within the settlement of Pistiros, Bulgaria dated to the 5th – 3rd century BC. Pistiros is one of the most interesting Iron Age sites in Bulgaria, as its ongoing excavations from 1988 changed the narrative on ancient Greek colonization, as this site seemed like an outlier, established not like other colonies on the seashore, but deep inland within the Thracian valley which was the heart of the ancient Odrysian Kingdom. An inscription states that the population consisted of Greek merchants who commenced trade with the local people. While the excavations have yielded various artifacts and coin hoards, little attention has been given to the animal remains from this site, which formed the bulk of the recovered material. They were simply labeled as “food waste”, but in the course of their full analysis, it was made apparent that they were over 60,000 in number, something unusual even for large settlements. This sheer quantity of material opened new questions. Why were there so-many of them within the fill of buildings, and did they serve any purpose aside from waste. To answer this question, the following case study applies taphonomical and special analysis to explore any depositional patterns.

700. A NEW GREAT DRAIN CHANNEL AT CERRO DE LOSALMADENES (OTERO DE HERREROS, SPAIN). REFLECTIONS ABOUT HYDRAULICS, ARCHITECTURE AND STRATIGRAPHY

Contribution format: Oral  
Contribution authors: Juan Álvarez García – Mariano Ayarzagüena Sanz – Santiago Valiente Cánovas (Sociedad Española de Historia de la Arqueología) – Gonzalo Lozano Otero (Instituto Geológico y Minero de España - Consejo Superior de Investigaciones Científicas)

The archaeological site of Cerro de losAlmadenes (Otero de Herreros, Spain), as one of the main copper production



sites of the Iberian Peninsula, has provided a lot of information about hydraulics in the mining-metallurgical field. Although the first investigations on the north-eastern slope of the Cerro already showed the existence of important hydraulic structures related to the copper smelting furnaces, recent investigations on the upper platform have revealed new ones associated with the structure that could be the main area for the management and control of metallurgical activities, a possible Roman castellum built between 1st century BC and the 1st century AD. Specifically, a channel was discovered, which has been investigated between 2021 and 2024. This channel has features not seen at the site before. Its size is remarkable, which exceeds that of others previously found, but also its layout and the materials used are notable. Everything indicates that it is a large water drainage structure. In addition, the dating of related materials establishes its construction in the 3rd century AD. This date, together with the relationship of the channel itself and the structures and stratigraphy of the surrounding area, has led us to make interesting interpretations about the succession and functions of several of the constructions that made up the castellum. Thus, this channel has not only provided us with information about the water drainage system used here but also allows us to develop hypotheses about the construction phases of the building to which it belonged.

**1117. BUILDING ON THE RUBBLE. DISCARDED POTTERY AS A RESOURCE IN ROMAN CREMONA AND ITS HINTERLAND**

**Contribution format:** Oral  
**Contribution authors:** Anna Riccato (University of Milan, Department of Cultural and Environmental Heritage)

As is well known, pottery was one of the main waste products in the Roman cities. Equally well known, however, is the phenomenon of the recovery of this type of material, which was recycled and reused within a virtuous circle that ensured both better waste management and the optimisation of available resources. This issue is currently being studied within the “CircE Project”, led by the Universities of Milan and Verona, which aims to assess the development of such activities over the longue durée and in different contexts of the ancient Cisalpine territory (Northern Italy). This paper will focus in particular on the case study of one of the region’s most important urban centres: the Roman colony of Cremona. Through an in-depth survey of published and unpublished data, it was possible to identify the ceramic classes most frequently affected by reclamation and recycling and to recognise the different ways in which they were reused, mainly connected to the needs of public and private construction but also to various necessities of everyday life, thus leading to reflect on the main actors involved in the retrieval of discarded pottery and its reintroduction in the society. The comparison with some minor sites of the city’s hinterland provided interesting data to investigate how urban communities differed from rural ones in exploiting discarded ceramic containers. Finally, the broad chronological span covered by the research, extending from the Late Republican age to the Late Antiquity, allowed to assess the development of circular economy processes in a diachronic sense and to ask which drivers of change influenced the abandonment or - the contrary - the strengthening of waste recovery practices.

**1762. WASTE MANAGEMENT, URBAN DYNAMICS AND SOCIETY IN OLD DONGOLA (SUDAN)**

**Contribution format:** Oral  
**Contribution authors:** Lorenzo De Lellis (Polish Centre of Mediterranean Archaeology - University of Warsaw)

From its foundation in the 5th century to its decline and eventual abandonment in the 18th century, the city of Old Dongola (Sudan) remained a major urban centre along the shores of the Nile. Extensive archaeological excavations on the site have revealed a complex stratigraphic sequence, charting its evolution from capital of the Makurian Kingdom to a regional power centre under the Kingdom of Dongola. Recent research has concentrated on the exploration of the late medieval and early Islamic periods, illuminating transformations during this crucial transitional phase, including the shift from Christianity to Islam. A defining feature of the stratigraphic record across its late-medieval and subsequent periods is the substantial accumulations of organic matter, frequently intermixed with diverse types of waste deposits within the urban area. Notwithstanding significant transformations across the settlement’s later centuries, this practice persisted as a consistent feature of its urban trajectory. This paper offers an in-depth analysis of these accumulations, so far largely dismissed as mere refuse, to offer deeper insights into the social and urban organization of the city. Drawing upon the characteristics of vernacular residential architecture, the analysis illustrates spatial and social strategies of waste management and how they relate to the transformations of the urban space. Furthermore, compositional analysis of these deposits demonstrates variations and specialization in the activities producing waste, differentiated disposal pathways for different material categories, and diverse re-use strategies of spaces and materials. This allows us to reconstruct the dynamics of this fundamental aspect of settlement life and its implications for understanding the society that expressed it.

**186. WASTE OR NO WASTE - FROM LATRINE TO RUBBISH DUMP IN POST-MEDIEVAL COPENHAGEN**

**Contribution format:** Oral  
**Contribution authors:** Simone Mayer (Museum of Copenhagen)

The city of Copenhagen underwent a considerable population growth in the 17th century resulting in the need to develop new systems of infrastructure and maintenance such as waste management. Written sources convey laws describing responsibilities for waste disposal, placement and sorting of waste, but also document the need to enforce and repeat restrictions regularly indicating illegal dumping and transgressions of the law. But how do those regulations mirror the archaeological evidence? Methodological difficulties in urban archaeology arise when surveys comprising limited archaeological fieldwork are used to explain these processes. However, recent larger excavations have uncovered information on various stages and aspects of waste management. Analyses of latrines from the 16th and early 17th centuries indicate extensive reuse, sorting of materials and recycling in a local and personalised context. By contrast, the large-scale excavation of an official early modern rubbish dump in 2024 uncovered a mixture of waste materials from the whole city, with perhaps limited signs of reuse outside of the social lower classes. The degree of recycling and sorting of waste could depend on the disposal site’s location and context (latrine, dump, moat etc.), but may also be connected to and reflected in people’s changing attitudes towards waste and value taking place between 1650 to 1800. This is portrayed in the consumer revolution where the middle classes were becoming more prominent and identifiable as seen from increased consumption of artefacts. By collecting data on waste disposal and management from other sites throughout Copenhagen, the paper aims to give insight in the material traces of waste management in an urban context and will discuss discrepancies between written sources and archaeological material, as well as indications of chronological developments in post-medieval and early modern times.

**2262. FERTILE HERITAGE - ORCHARDS AND GARDENS ON THE MEDIEVAL AND EARLY MODERN CITY DUMP AT LONG GARDENS IN DANZIG**

**Contribution format:** Oral  
**Contribution authors:** Zuzanna Wozniak – Maksymilian Cimoch – Artur Ginter (Univeristy of Lodz, Institute of Archaeology)

The earliest traces of settlement in today’s Danzig can be traced back to a fishermen’s and craftsmen’s settlement from the 7th century, while Gyddanyzcurbs is mentioned as a city in the 10th century. During the reign of the Teutonic Knights Danzig became a member of the Hanseatic League in 1346. Archaeological research were conducted by scientists from University of Lodz in 2007-2012 was the area of the Long Gardens, which was the part of Lower Town established in the 14th century. As late as the mid-17th century, only the plots along the street were built on, while the rest of the land was used as a dumping ground for the waste from the Main Town. At the same time, almost the entire area was planted with trees, shrubs and probably also cereals and vegetables in analogy with other towns in this period. The layout of the archaeological layers suggests that waste was systematically deposited there, and analysis of the artefacts suggests that it came from an area of a rich and culturally diverse city. As a result of the archaeological research our knowledge of the history of this part of the Lower Town has expanded considerably. We have acquired more than 200,000 artefacts, among them objects produced in the most famous centres all over the Europe, and even from China and Japan. On the basis of the material, it has been established that the beginnings of settlement in this area date back to the 15th century. No buildings have survived from this time, but several farm buildings were erected in the modern period. In the 19th century first brick buildings were built, and this was the time when the city stopped throwing wastes in this area.

**1457. WASTEDUMPS AS ARCHAEOLOGICAL PHENOMENA AND THEIR ESSENTIAL VALUE IN THE STUDY OF MATERIAL CULTURE AND DEVELOPMENT OF CITIES AND SOCIETIES**

**Contribution format:** Oral  
**Contribution authors:** Kasper Van Den Berghe (FindX)

Wastedumps provide unique data not retrievable out of other sources representing the period where nowadays society was formed. Wastedumps are features containing large numbers of objects of all kinds, discarded by a large group of people in a special defined place. Its uniqueness lies therefore not only in the fact that objects retrieved represent an independent category of material culture but also in the number of objects which can be studied in one complex. Besides that a wastedump is a, not by historical written records or otherwise substitutable, source of information on archaeology, cultural history, sociology, etc. With that, it forms a new and key essential connection between written sources of different kind. Despite the fact that wastedump. and modern time cities are intrinsically connected, waste dumps are not considered important sources of data in archaeology. Therefore they lack protection in the structure of heritage management. Neither are they present in the current archaeological research agendas, leading to every year destruction, limiting the possibility for research not only now but also in the future. The importance of research of wastedumps and the methodical approach will be presented by the line of field practices and theoretical examples. As such the special and temporal characteristics, its material containments and methods and challenges of study.



1299. FROM TRADE TO CONSTRUCTION: NEW RESEARCH ON THE “CHAÎNE OPERATOIRE” OF POTTERY RECYCLING

Contribution format: Poster  
Contribution authors: Francesca Galanti (Università degli Studi Roma Tre)

This poster aims to introduce a phd research that wants to reconstruct, through a multidisciplinary approach, the “chaîne opératoire” of the dynamics of pottery reuse as building material during the Roman period. The study starts from the foundation of the north-south mole of the port of Claudius from the 1st century AD, known as Portus – the new port of Rome. Described by Cassius Dione in Roman History as one of the greatest engineering feats of its time (LX, 11, 1-5), Portus represented the grandeur of an imperial capital both for the size and technological innovation. The choice of this recently excavated and unpublished context is grounded in the formation of the archaeological deposit. Regularly fragmented and selected ceramic material was intentionally rejected in the foundations to raise the floor level. The goal of this investigation is to analyse ceramic from a fresh perspective, through measurements, statistical calculations and a typological study of the material, useful for reconstructing how the deposit was formed combined with a topographical approach useful to contextualise the deposit in relation to the storage locations of the waste material. This research aims to identify, starting from the context in exam, common dynamics and recurring elements in the formation of other deposits, adding information on the existence of a structured “recycling” system of waste ceramics materials, and to create an applicable model based on the “chaîne opératoire” concept for analyzing and studying similar dynamics in other contexts. My intention is to actualize an ancient reality within a “modern” problem such as waste disposal and its management.

119 RECENT DEVELOPMENTS IN HH-PXRF STUDIES AND THE GLOBAL P-XRF NETWORK (GOPXRF.NET)

Session theme: 5. Finding the way! Archaeological sciences and opening new research perspectives  
Session format: Round table  
Session keywords: Archaeological Science, pXRF, Material Culture, Soils, Chemistry, Innovation  
Session organisers: Luisa Dallai (University of Siena) – Michaela Schauer (University of Vienna) – Keelie S. Rix (Universitat Pompeu Fabra)  
  
Session speakers: Michaela Schauer (University of Vienna) – Luisa Dallai (University of Siena) – Kathrin P. Schneider (Bruker Nano GmbH, Am Studio 2D) – Sabrina Save (Amélie études environnementales et archéologiques) – Keelie S. Rix (Universitat Pompeu Fabra) – Robert Tykot (University of South Florida) – Kayeleigh Sharp (Northern Arizona University) – Kidane Gebremariam (University of Stavanger)

SESSION ABSTRACT

The Global p-XRF Network (GopXRF.net) emerged after a number of meetings in 2024, including a session at the 30th EAA meeting in Rome and at the University of Vienna conference, Methodological Innovations in P-XRF Studies, where it was formalised. The network is a reaction to the increasing maturity among the user community and in light of the ever-increasing popularity and application of HH-pXRF across the discipline of archaeology, including in academic, museum and professional contexts. The network provides an opportunity for users who are keen to examine their own practices and engage in related discussions on a number of theoretical and practical issues. It brings together a number of expert practitioners from across the world and includes users and specialists with a broad range of interests, ranging from those working in conservation to field practitioners, and across all classes of material culture and geological materials. The aim of GopXRF.net is to share good practice, disseminate newly emerging techniques and innovative methods, provide resources and training to support new users and to develop guidelines. In order to further these goals, this roundtable session will provide opportunities for a number of speakers to present their work and to engage in the critical discussion of current and developing initiatives. The topics addressed by speakers will include an overview on the rules of physics in X-Ray analysis; practical examples of pXRF used on archaeological soils and anthropogenic sediments; tips for instrumental settings and calibrations; the use of UAV, pXRF and Artificial Intelligence; examples of pXRF used for the study of paintings. The session is organized in two parts: the first includes oral presentations, the second will be a World Café, i.e. a structured conversational process, where participants discuss a topic in small groups at different tables, encouraging diverse perspectives and collective insights. 4 thematic tables with 3 rounds of discussion will focus on: Inter- and Intra-Device-Calibration; Good practice & guidelines for sediments analysis of archaeological soils; Guidelines for AI in p-XRF studies; Good practice for non-destructive p-XRF on paintings. For more details about the session please visit the Global p-XRF Network at <https://vias.univie.ac.at/projekte/standardising-portable-x-ray-flourescence-for-archaeometry/initiating-a-global-p-xrf-network/>

120 ARCHAEOLOGY AND CULTURAL EVOLUTION WALK INTO A POST-DISCIPLINARY BAR: HOW IDEAS, PRACTICES, AND ARTEFACTS SPREAD IN PAST COMMUNITIES

Session theme: 3. Exploring methods in research, education and communication  
Session format: Regular session  
Session keywords: archaeological theory, cultural evolution, cultural transmission, cultural attraction, post-disciplinarity  
  
Session organisers: Vaclav Hrnčíř (Max Planck Institute for Evolutionary Anthropology) – Jiri Machacek – Radek Kundt (Masaryk University) – Mark. Porcic (University of Belgrade) – Felix Riede (Aarhus University)

SESSION ABSTRACT

How do people learn to knap flint, make pots, write texts or make – and drink – beer? Why are two figurines from different places and times sometimes so different – and sometimes so similar? What socio-ecological pressures shaped human ritual behavior and how does it facilitate mutualistic cooperation. A vital aim of archaeology is to understand the variation of material culture, behaviors, and norms in space and time, and the processes that generated this patterning. Basic processes of migration and cultural diffusion were introduced to archaeology over a century ago as part of the cultural-historical paradigm, yet a coherent and robust theory of cultural transmission was not developed until the late 20th century within the theoretical framework of cultural evolution. As major developments are taking place in adjacent disciplines such as evolutionary anthropology, behavioral ecology, evolutionary psychology, and cognitive sciences, the field of cultural evolution remains relatively unknown among many archaeologists. In this session, we put the spotlight on novel cultural evolutionary theories, methods, and tools such as cultural attraction theory/cultural epidemiology, cultural immunology, niche construction theory, experimental research, cultural phylogenetics, computer simulations, and comparative ethnology. We are particularly interested in the applications of these approaches to the interpretation of empirical archaeological data and the development of materialistically plausible explanatory models. At the same time, we welcome any research that relates to the evolution and transmission of cultural technologies, norms and institutions. Only by integrating insights from across a range of human sciences (survival value, underlying cognitive mechanisms, path-dependency, development) can we start piecing together the complex picture of cultural transmission within and between past human societies.

CONTRIBUTION ABSTRACTS

1100. DEALING WITH UNCERTAINTIES: HOW RANDOM IS THE DIVERSITY OF HUNTER-GATHERER TOOL ASSEMBLAGES?

Contribution format: Oral  
Contribution authors: Aleksandr Diachenko (2024/25 VUIAS Fellow | National Academy of Sciences of Ukraine, Institute of Archaeology) – Ray Rivers (Imperial College London, Department of Physics) – Iwona Sobkowiak-Tabaka (Adam Mickiewicz University in Poznań, Faculty of Archaeology)

Over the decades archaeology has gained significant experience in revealing behavioural patterns of the remote past from an analysis of the diversity of the archaeological record. Diversity, as a measure of uncertainty in archaeological assemblages, can act as a proxy for identifying the uncertainty of subsistence strategies or copying mechanisms. Archaeological research on diversity distinguishes between style and function. In models of neutral (unbiased) cultural transmission, two driving forces for changes in style are cultural mutation (innovation) and stochastic processes. Instead, research focused on the diversity of artefacts’ function in lithic assemblages generally correlates the distribution of tool classes to activities of various kinds, overshadowing the impact of random events. As a step towards understanding how hunter-gatherers dealt with uncertainty with regard to their subsistence strategies, daily life etc., this paper questions the impact of chance on the diversity of stone tool assemblages. A test of our quantitative approach is made through an analysis of the Late Paleolithic Federmesser and Swiderian assemblages on the North European plain.

162. A QUESTION OF SCALE: DISTRIBUTIONS OF STONE TOOLS IN THE ETHNOGRAPHIC RECORD

Contribution format: Oral  
Contribution authors: Christopher Buckley (Tracing Patterns Foundation, Berkeley, CA)

It is a commonplace observation in archaeology that scale of observation plays a role in the findings. For example, trends that are apparent on a regional scale are not necessarily observed in diachronic studies of individual sites. In this talk I will investigate the question of scale using a survey of ground-and-hafted ethnographic stone



and shell tools in the Asia-Pacific region, combining ethnographic reports from the past century and a half. This includes field data on cultural transmission, quarrying practices and knapping sequences, as well as museum specimens that allow mapping of the distribution of tool types, from micro scales of a few kilometers to intermediate scales of a few hundred km, and thence to the region as a whole. I compare these distributions with linguistic boundaries and ecological zones. The results shed light on how the competing forces of convergence, divergence, and individual cultural histories played out in the Asia Pacific region. While not attempting to provide definitive answers to all archaeological problems, the patterns at differing scales in this survey provide food-for-thought.

**1225. CULTURAL TRANSMISSION AT THE LATE NEOLITHIC SITE OF VINČA-BELO BRDO (SERBIA): REVISITING OLD QUESTIONS USING NOVEL TOOLS AND CONCEPTS**

**Contribution format:** Oral  
**Contribution authors:** Mihailo Radinovic (University of Belgrade, Faculty of Philosophy, Department of Archaeology)

More than four decades have passed since the basic concepts of dual inheritance and cultural transmission theory have been formulated. Numerous theoretical models, computer simulations, and laboratory experiments of cultural transmission have been done, deepening our understanding of the effect of different individual-level actions on population-level cultural dynamics. However, empirical applications of the CT theory on archaeological record have been somewhat limited. The goal of this study is to show the potential of CT theory for explaining the patterns of material culture, using the material culture from the Late Neolithic site of Vinča – Belo Brdo (Serbia) as a case study. The long-term cultural dynamics on the site, which were of great importance for forming a general picture of the Late Neolithic of the Central Balkans, are revisited based on data obtained from the analysis of knapped stone tools and anthropomorphic figurines, as well as a synthesis of the inferred data with other knowledge about Belo Brdo and the Late Neolithic in this area. The two artifact classes were analyzed using novel methodological approaches and interpreted in the light of the cultural transmission theory – including the application of Approximate Bayesian Computation for identifying transmission models (such as conformist, neutral, and anti-conformist) – thus providing a new perspective on long-term socio-cultural changes at Belo Brdo. The results of this study have shown that some deeply held assumptions regarding the social dynamics (e.g. conservatism, sudden changes) of early researchers must be taken with caution, and that we can learn much by applying novel, empirically established tools and concepts to the archaeological record.

**579. CULTURAL EVOLUTION IN THE AGE OF ATHENS: DRIFT AND SELECTION IN GREEK FIGURE-PAINTED POTTERY**

**Contribution format:** Oral  
**Contribution authors:** Peter Schauer (Department of Archaeology, University of York)

Variation in Greek figure-painted pottery has previously been unsystematically described as the result of social, political and art historical influences. In this study we propose that variation arises from the process of copying itself. The neutral model states that if there are no other forces at work, at time t the frequency of a variant in a population of variants will be in proportion to its frequency at time t-1, modified by the probability that new variants might be invented and old ones might fail to be copied each time there is a copying event, a process known as drift. We test the degree to which variation in figure- painted pottery can be explained by this model using evolutionary approaches to archaeology and culture change (Neiman 1995, Bentley et. al. 2004, Bentley et. al. 2007). We develop and expand these approaches through computer simulation. Using data from the Beazley archive, we created a new database containing a sample of 38,707 Attic figure-painted vases dating from 650 to 300 BCE. Within this sample we explore the diversity, distribution and turnover rate of motifs over time, between shapes and across different decorative techniques. We also explore correlations between shape and motif, and examine the variant frequencies underlying the emergence of the red- figured technique. We show that some of the variation in motifs on figure-painted pottery can be explained as being the result of random copying. Where the neutral model is not sufficient as an explanation of observed variation, we show whether selection is due to bias towards novelty or conformity. These results show that an evolutionary approach to cultural change provides us with a powerful tool for assessing previous research and allows us to identify areas in which further research is required.

**634. HOW THE IDEA OF COOKING A PORRIDGE IN UGLY POTS SPREAD ACROSS EUROPE AT THE BEGINNING OF THE MIDDLE AGES**

**Contribution format:** Oral  
**Contribution authors:** Jiri Machacek – Martin Kostal – Vojtech Nosek (Masaryk University, Brno, CZ)

The Middle Ages in Central and South-Eastern Europe begin with a deep change in the habitus of local populations. This transformation is well documented by empirical archaeological data. People appeared with a different

housing culture, foodways and burial rites. The archaeological expression of the new habitus, traditionally associated with the Slavic-speaking population, is the so-called ‘Early Slavic’ or ‘Prague’ culture, characterised by the ‘Prague-type’ pottery, which consisted of handmade, non-symmetrical, undecorated ‘ugly’ pots. The narrow, tall ‘Prague-type’ pots were designed for cooking in stone ovens, especially for making thick soups and millet porridge, as confirmed by organic residue analysis of the vessels. In the paper, the process of cultural transmission between communities that adopted new habitus and utilitarian Prague-type pots across Central Europe will be analysed. The method employed is based on morphometric analyses of virtual cross-sections from digital 3D models of vessels, combined with multivariate statistics and network analysis. The potential variability within the uniform Prague-type pottery will be measured and then explained in terms of cultural evolutionary theories.

**625. AN EXPERIMENTAL INDUCTION OF STYLISTIC EVOLUTION**

**Contribution format:** Oral  
**Contribution authors:** Marko Porcic – Mihail. Radinović (University of Belgrade) – Aleksandr. Jovanić (University of Arts in Belgrade) – Marija Branković (University of Belgrade) – Vojislav Ristivojević (Independent)

Spatio-temporal distributions of stylistic attributes have been a central focus of the traditional culture-historical approach in archaeology. Although the interpretative framework of the old culture-historical paradigm has been rightfully criticized and largely discarded on both empirical and theoretical grounds, certain patterns identified by 20th-century culture-historians still require explanation. One of the most significant of these patterns is the waxing and waning of artifact types over time. This empirically established trend formed the foundation of the frequency seriation method for relative dating. A crucial step in linking seriation with cultural transmission theory was made decades ago when it was demonstrated that the neutral model of cultural evolution produces patterns similar to the rise and decline of artifact types observed in the archaeological record. This model assumes that cultural variants are copied in an unbiased manner, with their transmission proportional to their relative frequencies within a population. The neutral model of cultural transmission plays a key role in the study of cultural evolution, particularly in evolutionary archaeology, where it has been widely used as the primary model of stylistic evolution. Here, we present the results of an experiment designed to induce the neutral model of cultural transmission in material culture. Our goal is to explore, in a controlled laboratory setting, how pottery shapes evolve under specific conditions and to determine whether we can replicate the patterns observed in the archaeological record. By designing an experiment intended to induce the neutral model of transmission, we aim to assess its applicability and implications for both cultural transmission theory and empirical research on material culture variability in archaeology.

**498. MODELS OF VARIANCE-PROPORTIONAL CULTURAL TRANSMISSION AND THEIR RELEVANCE FOR ARCHAEOLOGY**

**Contribution format:** Oral  
**Contribution authors:** Petr Turecek (Charles University, Faculty of Science | Center for Theoretical Study, Charles University and Czech Academy of Sciences)

Cultural evolution still struggles with the formalization of information transmission. Part of the reason for this could lie in the fact that cultural traits are usually modelled as discrete (or particulate), similarly to discrete genes. However, many cultural traits require continuous models. In the biological domain, continuous traits have been reduced to discrete genetic alleles. We suggest that the cultural domain requires the opposite: reducing discrete behavioural manifestations to an underlying continuous space. This approach already has two manifestations in the literature: vector embeddings of discrete artifacts in “design spaces” and the idea of a continuous “culture space” underpinning differences and similarities between individuals. We show how the continuous view can finally inspire a cultural version of mathematical formalism of population genetics that identified recombination, mutation, and environmental randomness behind stochastic biological inheritance. Equivalents to biological mutation (unintended deviation from the weighted mean of “cultural parents”) and recombination (constructive exploration of the culture space surrounding “parental” values) can be identified. Through a series of empirical experiments, we demonstrate that both “error” and “explore” terms are expected to exhibit offspring variance proportional to parental variance. Interestingly, the variance proportionality demands modelling multiple dimensions simultaneously, because high variance in one dimension (axial deviation) may provoke increased variance in dimensions perpendicular to it (lateral deviation). Computer simulations indicate that such underlying processes should leave identifiable signatures in the archaeological record, particularly in the overall variance of material culture. Patterns of variance should shift predictably with changes in population size and external stressors. Our framework thus provides testable expectations for the archaeological study of cultural transmission and offers new perspectives on previously puzzling phenomena.



1093. VARIANCE-PROPORTIONAL MODELS IN THE CULTURAL TRANSMISSION OF ARTEFACTS

Contribution format: Oral  
Contribution authors: Peter Kutsos – Petr Tureček (Charles University in Prague, Faculty of Science)

The traditional Galton-Pearson (GP) model of cultural transmission assumes offspring variability is independent of parental variability, thereby keeping population variability constant across generations. We aim to challenge this model by proposing an alternative: the Parental Variability-Dependent Inheritance model, positing that the variability in offspring is influenced by parental variability. To empirically test this model, we recruited participants from Charles University in Prague, University of Buea in Cameroon and Bokwango, Cameroon. Participants engaged with a user-friendly graphical interface in the Rhinoceros 3D design software to create an “offspring” artefact, inspired by two provided artefacts. The task required no specific technical expertise. Participants were tasked with designing their artefact to fulfill one of two objectives: an aesthetic (create an ornament) or a mechanical (create an artefact that rolls downhill fast) task. The artefacts were manufactured using a 3D printer and then presented to subsequent participants in the study. This experimental setup allowed us to directly examine the effects of parental variability on the design choices and outcomes of the offspring artefacts, providing insights into the dynamics of cultural trait transmission and shedding light on the effects of participants’ sociocultural environment. Our preliminary findings indicate that models incorporating variance proportionality provide a more accurate prediction than those assuming constant variance. However, the relationship between parental and offspring artefact variance is not strictly proportional. These insights challenge traditional assumptions about the stability of cultural variability over generations and have important implications for interpreting patterns of variance in the archaeological record.

1841. THE CULTURAL EVOLUTION OF CULTURAL EVOLUTION: ALIGNING THE MODEL WITH ARCHAEOLOGICAL DATA

Contribution format: Oral  
Contribution authors: Ross Pain (University of Bristol) – Christine Balasa (Capgemini)

Jonathan Birch and Cecilia Heyes (2021) outline a 5-stage framework for the emergence of cultural evolution via cultural evolution. In their “self-assembly hypothesis”, the cognitive mechanisms driving our capacity for accurate, fast cumulative cultural evolution are themselves built by cultural evolution. Their view opposes dual inheritance theories, which hold that those cognitive mechanisms are genetic adaptations to cultural environments. This paper adds archaeological detail to Birch and Heyes’ framework. The main aim is chronological. The paper identifies archaeological sites which signal key posits of the self-assembly hypothesis, and uses this to propose a chronology for the framework. The paper then links the 5 stages to specific hominin species, their cognitive profiles and socioecology. The chronology developed contrasts sharply with some aspects of the chronology Birch and Heyes’ propose. A secondary goal is to use archaeological data to test the self-assembly hypothesis, and see whether it fares better than dual inheritance theories. The paper argues that, while there is a lot more work to do in this area, Birch and Heyes’ present a viable alternative framework.

344. THE EVOLUTION OF COLLECTIVE RITUAL AS A COOPERATIVE SIGNALING PLATFORM

Contribution format: Oral  
Contribution authors: Radek Kundt (Masaryk University)

Collective ritual is one of the universals of the human behavioral repertoire. However, its omnipresence repeatedly puzzled evolutionary scholars because ritual participation requires substantial resource investments while seemingly not providing any apparent immediate benefits. We examine whether collective ritual could have evolved as a complex signaling system facilitating mutualistic cooperation. First, we identify similarity signals, coalitional signals, and signals of commitment to collective action as the main building blocks of the contemporary signaling systems in hunter-gatherers. Second, we trace the presence of possibly homologous cooperative signals in non-human primates and review the archeological record for the earliest evidence of ritualized signals in past hominins. Subsequently, we add the proximate level to our analysis, pinpointing the distinctive neurocognitive structures necessary for human ritualized signals and compare their estimated dating with the dating of the increased socio-ecological pressures on collective action in the Pleistocene. Synthesizing this evidence, we sketch a possible timeline for the evolution of ritualized cooperative signals and identify further areas of investigation that would advance this evolutionary model.

560. THE EVOLUTION OF SPIRITUAL MOVEMENTS AS A RESPONSE TO CULTURAL INTERACTION

Contribution format: Oral  
Contribution authors: Petr Kvetina – Jaroslav Ridky (Institute of Archaeology of the CAS, Prague)

Throughout human history, cultural interactions have frequently led to responses that result in the acculturation

of one of the groups involved. European overseas exploration and subsequent colonial expansion serve as prime examples, particularly since the acculturation process during this period is well-documented. A notable aspect of these interactions was the emergence of millennial religious movements in societies affected by acculturation. These movements can be seen as an evolutionary response, with the cargo cults of Melanesia being one of the most well-known examples. These cults anticipated the end of the existing world order, to be replaced by a new golden age filled with European material goods. However, similar spiritual movements have been observed globally, in regions including Oceania, Africa, the Americas, China, Burma, and Indonesia. These movements share common characteristics, emerging in societies facing crises, and can be broadly understood as part of an evolutionary process. This paper proposes that such phenomena may also have occurred in prehistoric Europe and aims to explore potential archaeological evidence to support this hypothesis.

436. LET’S DRINK OURSELVES TO CIVILIZATION: ALCOHOL, KAVA AND THE EVOLUTION OF SOCIO-POLITICAL COMPLEXITY

Contribution format: Oral  
Contribution authors: Vaclav Hrnčíř – Angela Chira (Max Planck Institute for Evolutionary Anthropology) – Scott Claessens (University of Kent) – Oliver Sheehan (University of Auckland) – Russell Gray (Max Planck Institute for Evolutionary Anthropology | University of Auckland)

The so-called “drunk hypothesis” argues that the consumption of intoxicants such as alcohol or kava (Piper methysticum) played an important role in the rise of the sociopolitical complexity of human societies. This is because intoxication promotes social bonding, increases cooperation, and enhances human creativity. Although many lines of evidence support these claims, systematic cross-cultural evidence is lacking. Here we present the results of two of our studies. In the first, we tested the effect of alcohol on the rise of political complexity using causal inference methods and a global sample of 186 non-industrial societies. We found a positive (albeit modest) relationship between the presence of indigenous alcoholic beverages and higher levels of political complexity, even after controlling for several potential confounders. In the second study, we examined the role of kava on both political complexity and social stratification. We used a sample of 78 Oceanic-speaking societies and a novel method of dynamic co-evolutionary models. We found a positive relationship between kava and both sociopolitical variables. However, the effect disappeared when we controlled for spatial non-independence. Our results support the idea that the group-level social benefits of traditional non-distilled alcohol may outweigh their disruptive effects, and that alcohol has facilitated the evolution of human societies. In contrast, we were unable to demonstrate the same effect in the case of kava drinking.

122 OF “TRIBES” AND “KINGDOMS” IN THE BALKANS DURING THE IRON AGE: INVESTIGATING PATTERNS OF SOCIAL COMPLEXITY AND POLITICAL ORGANIZATION

Session theme: 1. On artefacts and beyond  
Session format: Regular session  
Session keywords: Balkans, Iron Age, social complexity, theory, burials, settlements  
Session organisers: Vasiliki Saripanidi (Université libre de Bruxelles) – Hristo Popov (National Archaeological Institute with Museum, Bulgarian Academy of Sciences) – Pero Arđanliev (National Archaeological Museum of the Republic of North Macedonia)

SESSION ABSTRACT

While at the end of the Early Iron Age the southern part of the Balkan peninsula saw the emergence of the Greek city-states, the rest of the modern Balkan territory remained the home of numerous stateless societies. In the frame of the culture-historical and world-systems approaches, these societies have been conceptualized as “barbarian tribes”, which fell within a single societal type and were eventually influenced by but “failed” to emulate the Greek polis. Moreover, the discovery of highly ostentatious burials at several sites has given rise to the view that the political landscape of the Iron Age Balkans was marked by the formation of “tribal kingdoms”. Aside from the fact that this term remains ill-defined, over the last years the aforementioned hellenocentric assessments have been severely criticized. More importantly, recent studies of older and new archaeological finds leave no longer any doubt that sociopolitical developments were neither uniform nor synchronous across the Balkans. In order to contribute to a more nuanced understanding of the organization and functioning of stateless societies within the region, this session will combine bottom-up analyses of material evidence with recent approaches of social complexity, which do not necessarily dismiss neo-evolutionary categories such as “tribes” and “chiefdoms”, but they acknowledge, first, the culturally- and historically-contingent character of sociopolitical processes and second, the fact that power may be diffused across multiple and not necessarily hierarchical networks. We



welcome papers that undertake contextual analyses of settlement and/or funerary evidence from any phase(s) of the Iron Age and any part(s) of the Balkans with the aim of investigating social inequalities, their extent and duration over time, their intersection with different facets of identity (such as age, kinship affiliation and gender) and their association with specific spheres of social interaction (such as feasting, warfare, craft production and supra-regional exchange).

CONTRIBUTION ABSTRACTS

1074. IRON AGE SETTLEMENTS AND CEMETERY IN NEA PHILADELPHIA: EVIDENCE OF THE SPATIAL AND SOCIAL ORGANIZATION

**Contribution format:** Oral  
**Contribution authors:** Vasiliki Despotidou (Greek Ministry of Culture)

At the end of the previous century, a large-scale excavation was carried out in Nea Philadelphia which brought to light important antiquities of the Iron Age, such as a. installation on a table-shaped hill, several habitations on the plain, and an oversized cemetery. These are located near a Bronze Age settlement on a hill in the vicinity of the Gallikos river (ancient Echedoros) and at a short distance from the large-sized Iron Age “trapeza” Naresh, which dominates the agricultural district. The latter are known from the topographical surveys of the early twentieth century scholars. This paper aims to portray the environment, the housing, the human activities. the commercial and cultural characte. of the local settlements based on the excavation data. From this point of view, questions of the spatial organization, the interrelation and the contacts among a network of neighboring communities will be raised, taking into account the extended area of the settlements along the Echedoros valley. Moreover, issues concerning social and political structure as well as collective identities will be commented. In this discussion data will be also drawn from the local cemetery, especially with relation to the configuration of the burial space, the variety of burial architecture, burial customs an. social perceptions that are visible though grave goods.

2514. IRON AGE CEMETERIES IN THE THERMAIC GULF; NEA EFKARPIA, ORAIOKASTRO, NEA PHILADELPHIA. INTERCOMMUNITY RELATIONS AND CULTURAL INFLUENCES

**Contribution format:** Oral  
**Contribution authors:** Anna Panti (Ephorate of Antiquities of Thessaloniki region | Hellenic Ministry of Culture)

In Northern Greece, in the hinterland of the Thermaic Gulf, lie the Iron Age cemeteries of Palaiokastros and Nea Efkarpia, located at a short distance to the east and dating primarily from the 8th century BC. Inhumation in pit and cist graves, covered with large schist slabs, prevails. There are also a few cremation burials in urns. Graves are generally poorly furnished, with bronze and iron jewellery. A few handmade clay vessels, e.g. phialai, also accompany the deceased, along with a few wheel-made vases, e.g. kantharoid mugs, reflecting the sympotic nature of grave offerings. Miniature vases, amphoriskoi, and jugs were likely used as perfume vessels. The aforementioned cemeteries, along with the Nea Philadelphia necropolis to the west, are located close to each other and form a significant cultural unit in the hinterland of the Thermaic Gulf region. Their proximity outlines the spatial organization and the common cultural development of the region during the Iron Age. This paper aims to present the burial customs emphasizing the sympotic practices and the diversity of grave furnishing based on gender, age, and social status. The distinctiveness of several female graves furnished with plenty extravagant jewellery and clay spindle whorls highlight the special role of women in the social or religious life of the community. Additionally, the practice of accompanying infant burials with a bronze gilded omphalion warrants further examination. These cemeteries, situated at the foothills of Mount Chortiatis, provide a unique opportunity to explore potential inter-community relationships, as well as connections with neighboring settlements and regions of southern Greece. Their proximity to the Axios River, which offers direct access to the north, also contributed to the cultural influence of northern Balkan communities, particularly those in the southern part of North Macedonia, evident in both mortuary practices and tomb furnishings.

784. ANCIENT ALMOPIA IN LOWER MACEDONIA: MORTUARY PRACTICES DURING THE IRON AGE AT NEA ZOI, REGIONAL UNIT OF PELLA

**Contribution format:** Oral  
**Contribution authors:** Anastasia Chrysostomou (Hellenic Ministry of Culture, Archaeological Service)

The ancient settlement on the Terikleia Hill, at Nea Zoi, extended over about 20 acres and occupied a strategic position that allowed for the control of the southeast passage to ancient Almopia, at the northern border of Greece. Limited rescue excavations have shown that the site was inhabited from the Early Bronze Age to the Hellenistic period. Residential remains from all periods are heavily disturbed. During the Iron Age, there must have been stone-built structures equipped with coarse storage and cooking vessels, pyraunoi but also smaller ones of well-known Macedonian types. In addition to the residential remains, there have been identified three

cemeteries that mainly date from the Iron Age. The first possible cemetery, located at the southwestern edge of the settlement, yielded in 1980 a cist grave, as well as iron weapons and an alabaster that imitates Mycenaean models, all dating from the Early Iron Age. In 1993, a cemetery with pithoi and pyraunoi used for child burials was excavated at the center of the settlement, dating from the 7th-6th centuries BC. Finally, in 1997-1998, the main cemetery, of 11 tumuli, was found outside the settlement, to its northwest and separated from it by a river branch. The finds from the tumuli cemetery, which accompanied successive burials of adults and children, span the entire Iron Age. The choice of the last burial type, which is also known from other sites in Almopia, should be attributed to the ideological association between human habitation and burial space. Although the choice of the tumulus may suggest that this burial type was tied to the cultural identity of the Almopes, the existence of the other two cemeteries raises questions, for which no conclusive answers can be reached without more systematic and multidisciplinary research.

1797. LOST IN TRANSLATION: A LANDSCAPE ALTERNATIVE TO THE SETTLEMENT HISTORIES OF EARLY MACEDON

**Contribution format:** Oral  
**Contribution authors:** Giannis Apostolou – Alfredo Mayoral – Konstantin. Venieri (Landscape Archaeology Research Group (GIAP) / Catalan Institute of Classical Archaeology (ICAC)) – Sofia Dimaki (Ephorate of Antiquities of Grevena) – Mercourios Georgiadis (University of Crete) – Arnau Garcia-Molsosa (Landscape Archaeology Research Group (GIAP) / Catalan Institute of Classical Archaeology (ICAC)) – Hector Orengo (Barcelona Supercomputing Center—Centro Nacional de Supercomputación (BSC—CNS) | Catalan Institution for Research and Advanced Studies (ICREA) | Landscape Archaeology Research Group (GIAP) / Catalan Institute of Classical Archaeology (ICAC))

Studies on the sociopolitical organisation of Early Macedon are often framed through the supposed dominance of geographically-fluid, tribal structures. Furthermore, traditional narratives have positioned the character of the local communities within a rigid teleological framework, assessing their evolution as opposed to the phenomenon of the Greek polis in the southern part of the peninsula. This paper discusses the results of a new multi-disciplinary archaeological survey in the Grevena region (modern Western Macedonia, Greece), offering a landscape-based reassessment of settlement dynamics from the Late Bronze Age to the beginning of the Hellenistic period (c. 1500–300 BCE). By integrating archaeological survey data, remote sensing and geomorphological analyses, we move beyond site distributions to explore the role of the communities, land-use strategies and environmental changes in shaping long-term models of habitation. In addition, we reconsider how these settlement forms and their territorial organisation may have responded to broader socio-political developments, in our case the Macedonian Kingdom. Rather than a linear trajectory toward centralised sites and urbanisation, the evidence suggests a more flexible and adaptive engagement with the landscape, where settlement stability and mobility coexisted throughout the shifting socioeconomic conditions. In conclusion, this research challenges static notions of tribalism, contributing to discussions on territoriality, state formation, and the contingent nature of social complexity in ancient Macedonia and, more widely, the Balkans during the Iron Age.

566. OF “TRIBAL KINGS” AND THEIR WORLD: SOCIOPOLITICAL STRUCTURES IN THE EARLY KINGDOM OF LOWER MACEDONIA

**Contribution format:** Oral  
**Contribution authors:** Vasiliki Saripanidi (Université libre de Bruxelles & Fonds de la Recherche Scientifique (FNRS) of Belgium)

Research on the sociopolitical structures of the Macedonian kingdom under its first dynasty, the Temenids, has remained focused on the reigns of Philip II and Alexander III, and it has primarily revolved around the so-called “constitutionalism debate” over the degree of absolutism of Macedonian kingship. Moving back to the 6th c. BC, this paper will investigate the sociopolitical organization of the kingdom at the time of its formation and during the first century of its existence, when its territory was limited to Pieria, Bottiaia and the region around the head of the Thermaic Gulf, east of the Axios River. Given that little textual and settlement evidence is available for this period, for this purpos. the paper will rely on the funerary remains that have come to light at about twenty sites from these regions. Combining a bottom-up contextual analysis of the funerary evidence with the frameworks of Dual Processual and Collective Action theories, it will seek to define the extent of social inequalities within and between the communities of Lower Macedonia during the 6th c. BC, the relationship of such inequalities with different aspects of identity, as well as the mechanisms that allowed for their production and maintenance. Finally, the evidence from this period will be briefly considered with relation to the evidence from the Classical period, in order to discuss the nature of Temenid kingship and its development over time.



1490. LIFE IN DEATH: BIOARCHAEOLOGICAL PERSPECTIVES ON SOCIAL COMPLEXITY IN THE CEMETERY OF SINDOS, THESSALONIKI

Contribution format: Oral  
Contribution authors: Daniela Heilmann (LMU Munich | RGK Frankfurt/M.) – Natasa Sarkic (Aita Bioarchaeology)

The socio-political organization of the Iron Age Balkans has long been a subject of debate, particularly regarding concepts of statehood, social complexity, and interaction with the “Greek” world. The Sindos cemetery (Thessaloniki), one of the few fully published burial site from the Late Archaic and Early Classical period in Macedonia, provides a critical case study for understanding social structures in the region. While material culture and grave goods have been extensively analyzed, the osteological record remains an underutilized resource for investigating the lived experiences of the individuals buried there. In this research, we present preliminary results and outline the aims of our ongoing study, which seeks to integrate bioarchaeological methods into the analysis of the Sindos cemetery. By examining skeletal markers related to health, muscle activity, and pathology, we explore social differentiation based on age, gender, and, prospectively, kinship. This approach shifts the focus from burial practices alone to broader questions of daily life, mobility, and labor specialization within the community. Furthermore, by placing the osteological data from Sindos within a broader comparative framework, we aim to refine methodologies for analyzing social complexity in Iron Age societies across the Balkans. Integrating bioarchaeological findings with archaeological context offers new perspectives on non-state political and social structures, moving beyond traditional Hellenocentric narratives. Our study highlights the potential of bioarchaeology to deepen our understanding of past communities and their internal dynamics, while also laying the groundwork for future interdisciplinary research.

933. “THE CEMETERY OF ACHLADA IN FLORINA: THE CENTER OF THE ANCIENT KINGDOM OF LYNCUS IN UPPER MACEDONIA”

Contribution format: Oral  
Contribution authors: Liana Gkelou (Ephorate of antiquities of Florina)

The present study concerns the cemetery in the area of Achlada, 22 km. NE of the city of Florina. The cemetery was revealed within the borders of a private lignite mine and brought to light more than 1500 graves, covering a long-time span, from the Late Bronze Age down to the Byzantine times. During the historical period, the area of Achlada belonged to Upper Macedonia and, specifically, to the kingdom of Lyncus. The northern part of Lyncestis is identified with the wider area of today’s Bitol. i. North Macedonia, where the capital of Roman times, Herakleia, was located. The southern Lyncestis coincides with most of today’s Florina Prefecture. The deceased of the Archaic and Classical period were accompanied with grave goods that included a wide range of terracotta vases. The majority of these vases were locally made but the local repertoire was enriched with imports from Ionia, Corinth and Athens, areas which clearly affected the local pottery production. Apart from pottery, they were also furnished with metal vessels, bronze, silver, and gold jewels as well as iron weapons. Similar finds have been found at the contemporary cemeteries of Macedonia, such as Sindos, Archontiko, Aiges and Aiani. The artifacts from the cemetery of Achlada are of great importance as they confirm the systematic commercial and cultural contacts with great artistic centers and they also provide us with a, so far lacking, piece of historical information concerning the Kingdo. of Lyncu. before the unification of the Macedonian Kingdoms under Philip II.

537. THE ARCHAIC NECROPOLIS NEAR KOROŠIŠTA: A LANDMARK DISCOVERY FOR THE UNDERSTANDING OF ANCIENT COMMUNITIES AND THEIR REGIONAL DEVELOPMENT

Contribution format: Oral  
Contribution authors: Pero Ardjanliev (National Archaeological museum of North Macedonia)

The recent discovery of an archaic necropolis near the village of Korošišta provides insights into the social, cultural, and economic development of ancient communities in the Ohrid-Struga region. This area has been home to several previously investigated Archaic-period burial sites, including those at Trebenište, Radolišta, Delagožda, and Gorna Porta. These extremely rich findings have long highlighted the region’s importance, positioning it alongside the Thermaic Gulf area, which also boasts numerous Archaic necropolises. The newly discovered Korošišta necropolis, located in an exceptionally strategic position, offers fresh evidence of regional connectivity, trade networks, and the role of ritual in social organization. By analyzing the grave goods, human remains, and contextual data, this study offers significant contributions to the archaeological record of the Balkans. It enriches our understanding of burial practices, social structure, and the dynamics of early societies, shedding light on how these communities interacted with their environment and each other. Ultimately, the Korošišta necropolis enhances our knowledge of the Archaic period, emphasizing the region’s central role in the broader development of ancient civilizations.

1726. DENDROCHRONOLOGY, ABSOLUTE DATING, AND WOODLAND USE AT THE IRON AGE UNDER-WATER SITE OF VRBNIK, LAKE OHRID, NORTH MACEDONIA

Contribution format: Oral  
Contribution authors: Andrej Maczkowski – John Francuz (University of Bern) – Valentina Todoroska (Independent) – Aleksandra Papazovska (Archaeological Museum of North Macedonia) – Bojan Taneski (Institute for protection of monuments and museum – Ohrid) – Matthias Bolliger – Johannes Reich – Alain Schaffner (University of Bern) – Lukas Wacker (ETH Zurich) – Albert Hafner (University of Bern)

The site of Vrbnik lies near the northern shore of Lake Ohrid, in the immediate vicinity of the town of Struga. The site was first excavated in 1998 and based on the material culture has been attributed to the 7th-6th centuries BC. Currently, the site lies 2-3 meters under the modern water table of the lake and extends towards the land. Besides the wooden piles protruding from the lake bottom, the archaeological finds comprise of fine and coarse pottery, often heavily eroded, as well as bronze and iron objects such as needles, blades, fishhooks, bracelets, and several iron spears. The initial sampling of the wooden piles for dendrochronological analyses took place in 2021 and continued with higher intensity in 2022. To date, 189 wooden piles were sampled from an area of 130m2. A first 156-years long tree-ring chronology from the Iron Age is presented. The combination of dendrochronology and high-resolution radiocarbon enables overcoming the problem of the calibration curve’s Hallstatt Plateau and allows us to narrow the end-date in the mid-1st millennium BC. Moreover, a detailed analysis of the tree-ring sequences shows regular patterns of tree growth suppression, likely a result of human forest use. Compared to earlier forest exploitation practices as deduced from the tree-rings of archaeological wood from other sites around Lake Ohrid, the patterns in Vrbnik seem more regular. This potentially highlights changes in resource use influenced by social organisation changes that are associated with the Iron Age.

1252. THE IRON AGE CEMETERY AT THE SITE ZAKOTORAC-GOMILE - NEW FAR-SIGHTED LIGHTHOUSE ON THE SOUTHERN ADRIATIC

Contribution format: Oral  
Contribution authors: Hrvoje Potrebica (University of Zagreb, Faculty of Humanities and Social Sciences, Department of Archaeology) – Marko Dizdar (Institute of Archaeology, Zagreb) – Domagoj Perkić (Dubrovnik Museums, Archaeological Museum)

The systematic excavation of the cemetery with stone burial mounds and dry-stone tombs at the Zakotorac-Gomile site on the Pelješac peninsula began in 2020. So far, three mounds and two dry-stone tombs were excavated, containing richly furnished inhumation burials dated from the beginning of the 6th to the beginning of the 2nd century BC. Each mound contained several graves with multiple burials including men and women of all ages, with possible kinship relations. There are few graves with exclusively child burials. The community of Zakotorac practiced this complex funeral ritual, with some minor changes, for several centuries. Pottery is almost absent from the oldest graves. Greek pottery appears from the 5th century BC and could be interpreted as the imported symposium sets. Male burials often contain offensive weapons (xiphos, machaira, spears) dating from the 5th to the beginning of the 4th century BC, while the Greek-Illyrian helmets of type III A2a were placed in separate constructions not related to any particular individual (perhaps as votive offerings). Numerous ornaments and other elements of women’s costume discovered in some graves emphasize the importance of these objects in the definition of their local visual code and identity, and also indicate that some women had prominent status in the community. Numerous objects imported from the Mediterranean and elsewhere, found in the same context with local ones, testify to intensive social interactions and connectivity with neighbouring and distant areas (central and northern Adriatic, western and central Balkans, southern Italy). The power of the local elite, manifested through prestigious goods displayed in their graves over centuries, could have relied on the management of local ‘resources’ (e.g. salt, slaves...) or their control over one of the crucial points on the communication route that connected the Mediterranean and the Adriatic, and further into the western and central Balkans.

1563. KATA ETHNE: ARCHAEOLOGICAL HORIZONS AND HISTORICAL REFLECTIONS OF POWER IN INNER THRACE DURING THE LATE CLASSICAL AND HELLENISTIC PERIODS

Contribution format: Oral  
Contribution authors: Slava Vasileva (National Institute of Archaeology and Museum) – Julij Emilov (Sofia University St. Kliment Ohridski)

The presentation provides an analytical overview of feasting, negotiating, and power control in Inner Thrace (during the second half of the first millennium BCE) as reflected in the archaeological record and texts of ancient authors. A brief review of the theoretical implications of the ethne concept outlines current limitations in tribal interpretations of ancient ethnonyms. Understanding the Aristotelean kata ethne as a description of



“comparatively free”, “barbarian” lifestyles in the cold places of Europe, serves as a theoretical framework for discussing some examples of feasting manners, competition, and violence in (Late Classical and Early Hellenistic) Thrace. A case study examining the archaeological horizons of power, the distribution and depositional patterns of Attic painted pottery, and references to the works of Xenophon and Diodorus Siculus (about the banquet arrangements of Seuthes, Dromichaïtes, and Lysimachus) offer insight into the practices of wine consumption in creating and maintaining social bonds in the region. The second case study is a suggestion to read the Seuthopolis inscription (IGBulg 1731) as an exceptional example of successful crisis management from the inner parts of South Thrace. The early 3rd century BCE monument propagates the news of an agreement between two houses of power, which is exhibited on four stone documents in the poleis under their control. The final part of the presentation addresses the topic of violence, reflected in the Diodorus Siculus narrative on the vicious and bloodthirsty kings of Caeni, who terrorized their subjects. The names of the cruel Diegylis and his son Zibelmios became synonymous with the dangers of uncontrolled authority, kata ethne. Beyond the moral visions of Diodorus, the text fragments contain valuable “ethnographic” knowledge regarding the application of capital punishment among the “Thracian barbarians”, a hint at the interpretation of some “unusual graves” in the “pit fields” of Iron Age Thrace.

**392. SEARCHING FOR THE IRON AGE “TRIBE” THAT OWNED A STOLEN NATIONAL TREASURE OF ROMANIA: THE GOLDEN HELMET FROM COȚOFENEȘTI CONTEXTUALIZED**

**Contribution format:** Oral  
**Contribution authors:** Dragos Mandescu (Arges County Museum)

Since its discovery on the hills of Coțofenești, which happened by chance almost a century ago, this sensational golden helmet from the Second Iron Age (dating from around 300 BC) has become a national treasure for Romania. Its recent looting from a museum in the Netherlands, at the end of a temporary exhibition on Bronze and Iron Age goldsmithing, meant shock, horror and anger not only for Romanian but also for European archaeology. The presentation deals in detail with this stolen jewel, aiming to highlight topics as its historical and cultural contextualization, its integration into the archaeological landscape of the area, but also the “ideological mechanisms” through which it imposed itself in the national consciousness of the Romanian people. The main significant elements for the shaping of the Second Iron Age “tribe” south of the Carpathians that owned and used it will be discussed: both those related to the density and shapes of the Iron Age habitat in the respective area, those related to control over the essential resources of that time (salt, pastures, forests and the trans-Carpathian access route), as well as the mythical and ideological ones (beliefs in the lineage from a prominent ancestor who through sacrifice ensures peace and balance in society).

**123 FROM GREECE TO GANDHARA: ALEXANDER’S EASTERN CAMPAIGN AND THE INTERACTION OF EASTERN AND WESTERN MATERIAL CULTURE**

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** Alexander, Greek Art, Gandhara, Buddhism  
**Session organisers:** Feng Liu (Heidelberg University,SAGE) – Fengyen Kuo (Fo Guang University)

**SESSION ABSTRACT**

This session will explore the eastward transmission of Greek culture following Alexander the Great’s campaign, which facilitated a dynamic interaction between Hellenistic traditions and local cultures across West and Central Asia. Alexander’s conquests paved the way for cultural exchange, as Greek artistic and philosophical traditions encountered the diverse practices of these regions. When Greek influence reached northern India, a profound synthesis emerged in what is now recognized as Greco-Buddhist art, with Gandharan art as its most prominent expression. This style uniquely blended Greek naturalism with Buddhist iconography, creating a hybrid art form that reflects both Eastern spirituality and Western aesthetic sensibilities. To fully capture this interaction, the session will examine a wide range of artifacts, including Buddha statues, stupas, coins, ceramics, amulets, seals, jewelry and so on. Emphasis will be placed on the archaeological contexts in which these objects were discovered, shedding light on their production, usage, and cultural significance. The establishment of the Silk Road further intensified these interactions, turning Gandhara and surrounding areas into cultural crossroads. Excavated material culture from Pakistan, Afghanistan, and northern India—including items from religious, domestic, and trade contexts—bears testament to the enduring impact of Greco-Buddhist art and the continuous exchange of ideas along these routes. By integrating an archaeological approach, this session will explore the evolution of Greco-Buddhist art and related material culture, investigating their roles in shaping visual and cultural identities along the Silk Road and their enduring legacy in South and Central Asia.

**CONTRIBUTION ABSTRACTS**

**857. RECENT EXCAVATIONS INDICATING TRENDS IN ARCHITECTURAL EVOLUTION OF BUDDHIST STUPAS IN BIHAR, EAST INDIA**

**Contribution format:** Oral  
**Contribution authors:** Ishani Sinha (SOAS)

Excavations at Vaishali in 1959-60 revealed a low hemispherical earthen stupa, very elementary in construction, ostensibly because it belonged to the beginning phase of Buddhism in the 5th century BCE. It was in sharp contrast to the morphologically differentiated high rise brick stupas earlier excavated at Nalanda between 1915-37 which belonged to the Gupta and Pala periods, close to the ending phase of Buddhism. With a large gap of about one thousand years it was difficult to trace their linkage in terms of architectural growth. A recent excavation (1999-2001) conducted by Archaeological Survey of India at Banaganga (Rajgir) has turned out to be very crucial in this context. Findings of Banaganga, viewed in tandem with those at Lauriya Nandangarh, provide definitive clues on the course of architectural development, diversification and differentiation of stupas during Maurya period and Post Maurya period. Another recent excavation at Kesariya further adds to our knowledge of stupa evolution during late Gupta period (6th century CE). The proposed research paper investigates the architecture of, and findings from, these excavated stupas in order to establish the trend of chronological evolution of the buddhist stupa architecture in the cradle land of Buddhism, the state of Bihar which may act as a model of stupa evolution in India and global context.

**274. THE EARLY DISCOVERY OF DIONYSOS IMAGES IN EAST ASIA: A DISCUSSION ON THE IDENTITY OF THE PATTERN OF XI’AN M1:64**

**Contribution format:** Oral  
**Contribution authors:** Mengyi Li (Ludwig Maximilian University of Munich)

Dionysos, a major deity in Greco-Roman mythology, is also one of the most widely disseminated gods across different civilizations. Recent archaeological discoveries suggest that through Alexander the Great’s eastward expansion and extensive trade networks, the cult and imagery of Dionysos may have reached China and East Asia via multiple routes. One possible route led from the Gandhara region through the Southwest Silk Road, passing through present-day Yunnan and Sichuan before reaching Chang’an, the capital of the time. Another potential path extended through Qinghai in the northwest, facilitating its transmission into the Central Plains. This presentation/paper examines a ceramic camel figurine unearthed in Xi’an, Shaanxi Province, employing archaeological and iconographic analysis to explore the representation of Dionysos in the Far East during the 5th century CE, as well as other possible images influenced by Hellenization. The specific identity of the figure on M1:64 remains highly contested, with leading interpretations suggesting it represents the god, Dionysos, Surya, Silenus, or other figures. This study argues that the figure should be identified as Dionysos, with its Silenus-like appearance resulting from cultural adaptation and misinterpretation during transmission. Furthermore, the author examines additional decorative elements on the ceramic figurine to support this conclusion while also exploring other Greco-Roman iconographic elements found in Chinese artifacts from the late 5th century CE. Additionally, the study discusses the possible transmission of these foreign motifs through the Gandhara region via the Southwest Silk Road.

**203. CULTURAL EXCHANGE REFLECTED IN GANDHARAN BODHISATTVA ORNAMENTS**

**Contribution format:** Oral  
**Contribution authors:** Fengyen Kuo (Fo Guang University)

The Buddhist sculptures of Gandhara and Mathura, though contemporaneous, exhibit notable differences in facial features, clothing, and hairstyles. Their distinctions are also evident in the ornaments worn by Bodhisattvas. Mathura Bodhisattvas, influenced by traditional Indian art, typically features simple V-shaped necklaces. In contrast, Gandharan Bodhisattvas are adorned with intricate and layered chokers and necklaces, among which the “double-animal motif chest ornament” stands out as particularly striking. The double-animal motif chest ornament, prominently displayed on the chest, features two identical and mirrored figures at its center. These are often animal heads but may also depict combinations of animal heads with plant forms or Greco-Roman-inspired designs, such as human-headed creatures with animal bodies. This dual-animal motif appears not only on Gandharan Bodhisattva sculptures but also in archaeological artifacts unearthed in Central Asia. It can be categorized into two main styles, with its origins potentially tracing back to Greek influences. As Buddhism spread, the double-animal motif chest ornaments were introduced to China, where they became popular and were widely adopted in Bodhisattva representations during the 5th and 6th centuries CE.



917. ADMINISTRATIVE CONTINUITY AND CULTURAL INTERACTION IN BACTRIA UNDER DYNASTIC TRANSITIONS: AN ARCHAEOLOGICAL PERSPECTIVE

Contribution format: Oral  
Contribution authors: Feng Liu (Heidelberg University, SAGE)

Prior to significant archaeological discoveries in the latter half of the 20th century, the history of the Greco-Bactrian, Indo-Greek, and Kushan kingdoms relied almost exclusively on numismatic studies. As the Greco-Bactrian influence expanded into northwestern India, some rulers began minting bilingual coins, featuring Greek inscriptions on one side and Indian inscriptions on the other. These coins may reflect a genuine cultural and social distinction between Greek and Indian identities. By the late fourth century BC, regions such as Sogdiana, Bactria, Arachosia, and northwestern India—formerly nominal provinces of the Persian Empire—were “conquered” by Alexander the Great and garrisoned with Greek troops. Around fifty years later, an independent Greco-Bactrian state emerged, controlling territories north of the Hindu Kush, while the southern and eastern regions became part of the Maurya Empire. By the late third century BC, Seleucid King Antiochos III attempted, but ultimately failed, to reclaim Bactria. Instead, Greco-Bactrian prince Demetrios, initially involved in negotiations with Antiochos, launched an invasion of India, possibly reaching the Ganges Valley. Despite successive regime changes, the administrative structures of Bactria remain poorly documented in textual sources. This study aims to explore the region’s administrative systems and agricultural production through archaeological evidence, shedding light on their continuity and adaptation under different rulers.

1818. BEYOND SOUTH ASIA: THE BUDDHIST KINNARA AND ITS INTERACTIONS WITH SURROUNDING REGIONS

Contribution format: Oral  
Contribution authors: Yu Sun (Department of Archaeology, Durham University)

The Kinnara, a mythical being in ancient South Asian Buddhist art, is commonly depicted as a human-headed bird in religious contexts. In the past, many human-headed bird images discovered in not only Gandhara but also the neighbouring Bactrian region have been identified as representations of the Kinnara. This paper reassesses the archaeological evidence related to these figures to clarify the development of Kinnara imagery in Indian Buddhism and re-evaluate previously misidentified human-headed bird depictions. Human-headed bird imagery appears in Indian Buddhist art from the 2nd century BCE to the 8th century CE, following three distinct phases: (1) Early Emergence (2nd–1st century BCE), (2) First Flourishing (2nd–5th century CE), and (3) Second Flourishing (6th–8th century CE). A key feature is the depiction of paired male and female figures, often associated with floral motifs and musical attributes. The mountainous landscapes of the Indian subcontinent helped preserve indigenous traditions, allowing Kinnara imagery to retain its original forms or develop distinct regional variations. However, in bordering regions, particularly Gandhara and adjacent Central Asia, a significant cultural exchange corridor connected South Asia with Central and East Asia. Within this zone, many previously identified Kinnara figures actually exhibit influences from Hellenistic, Sasanian Persian, and Chinese Buddhist artistic traditions. These artistic elements interacted within this exchange network and, in turn, contributed to the stylistic evolution of human-headed bird imagery in India, resulting in distinct regional artistic developments. Thus, while India’s mountainous regions preserved indigenous Kinnara traditions, its northwestern frontier facilitated external artistic influences, making it a dynamic site of cross-cultural interaction in Buddhist art.

124 ARCHAEOLOGICAL TOURISM AND SUSTAINABILITY FOR LOCAL COMMUNITIES

Session theme: 6. Intertwining archaeology, heritage, and museums  
Session format: Session with keynote presentation  
Session keywords: Social sustainability, Tourism, World Heritage, Local communities  
Session organisers: Francesca Benetti (Independent) – Mattia Sanna Montanelli (University of Cagliari) – Diego Calaon (Ca’ Foscari University, Venice) – Claudia Seabra (University of Coimbra)

SESSION ABSTRACT

In Europe, cultural and archaeological tourism is a key resource for many local economies due to the presence of sites of national or global significance. The inclusion of sites in the World Heritage List, for example, is generally perceived as a driver for tourism. Despite the numerous calls for sustainable policies and practices (by UNESCO, the WTO, the EU and other international stakeholders), the uncontrolled growth of this sector in several areas is generating side effects that threaten the integrity of archaeological sites and de-stabilise the socio-economic fabric of host communities. In many sites, there is growing intolerance of phenomena of “vitrification” - the transformation of communities into mere scenic backdrops - and “destinations built for others” in which residents no

longer recognise themselves in the place where they live. The consequences are tangible: unequal distribution of wealth, unaffordable housing, and often precarious employment. Indeed, communities are increasingly voicing their concerns with protests (e.g. in Spain, Netherlands, Italy). The fragility of the sector has been dramatically shown by the Covid pandemic, and this fragility is compounded by other factors such as war, terrorism and climate change, that also threaten the physical preservation of archaeological sites. This session proposes an interdisciplinary dialogue to explore innovative strategies and approaches to integrate archaeological tourism with the needs of local communities, promoting a model that preserves cultural heritage and supports balanced and inclusive local development. We welcome papers that explore: national frameworks and proposals for embedding sustainable practices in cultural tourism management; new theoretical perspectives and best practices oriented toward the management of tourist flows in heritage sites/areas; the use of digital technologies for responsible enjoyment of archaeological sites; challenges on the ground and critical evaluation of co-design practices; successes and failures of participatory models for the active and meaningful involvement of local communities.

CONTRIBUTION ABSTRACTS

2516. KEYNOTE: WORLD HERITAGE SITES: AUTHENTICITY AND PLACE-ATTACHMENT

Contribution format: Oral  
Contribution authors: Cláudia Seabra (University of Coimbra)

Since its first classification in 1978, World Heritage Sites (WHS) and tourism have shared a long and common history, as these places are viewed as icons and are highly valued as tourism destinations by the international community. As predicted by Russell Train, a mentor to the World Heritage Convention, the “World Heritage” classification would be eagerly sought and the sites identified as such would become “five-star” world attractions (Rao, 2010). WHS are extremely important tourism destinations, increasingly sought by tourists who want to experience authentic places that will enable them to establish a strong connection with local history, culture, and with the communities living in a given territory (NCDOT, 2000). WHS are treasures that belong to everyone, so they must be available to residents and tourists alike and must simultaneously be protected to be enjoyed by future generations. WHS are regarded as places whose authenticity makes them different and unique (Turok, 2009); they are granted a universal value (Naoi 2004, Kolar and Zabkar 2010), as well as a cultural and a heritage value (McKercher and Du Cros 2003). The latter is one of the factors that will have the highest impact on tourists’ destination choice (Yeoman et al., 2007). World Heritage Sites (WHS) represent the culture of the country in which they are located and, at a wider international level, are symbols of these places (Shackley, 1998). From a human, social and cultural perspective, a WHS is much more than a collection of buildings representing the accumulation of cultures and traditions and the heritage values that these cultures have produced or reused. More importantly, WHS are places made of people: residents, communities, visitors, tourists (Su and Wall, 2014). In WHS that are inhabited or fully functioning the relationships between residents or users, visitors and tourists are especially complex. In addition, the connections those different players establish with the place itself are multifaceted. Residents have a crucial role in WHS destinations fruition, since they play the main role in promoting tourists’ immersion in experiences that are intended to be unique and authentic (Ashworth and Tunbridge, 2000). Residents relate with the tourists and perform storytelling experiences giving meaning to the place. However, WHS own authenticity is perceived by residents/users and visitors/tourists in a number of different ways. Residents/users have a constructive perception of authenticity connected with cultural and social references; on the other hand, visitors/tourists have a more existential perspective that is linked to their enjoyment and entertainment (Richards, 2007). The current research paradigm reinforces the importance of analyzing and understanding the subjective, emotional, and symbolic meanings that individuals attach to places (Williams & Vaske, 2003). Also, it is important to understand the paradox of conservation vs visitation of these places. They should be preserved because of their intrinsic value, but they should be available for visitation as well. But how to balance both sides?

644. BALANCING ARCHAEOLOGICAL HERITAGE TOURISM AND SUSTAINABILITY: INSIGHTS FROM THE BAY OF NAPLES

Contribution format: Oral  
Contribution authors: Caterina De Vivo (Independent)

The relationship between archaeological heritage tourism and sustainability is complex and requires a multidisciplinary approach. Drawing from the author professional experience as both a tour guide and archaeologist, with a specific experience as a consultant on heritage management in some of the most effected by tourism European sites (e.g. Archaeological Park of Pompeii), this presentation will explore key challenges and some possible solutions to integrate tourism into more sustainable heritage management practices. Using the Bay of Naples as a case study, this presentation will raise the attention on the need for stronger collaboration between heritage and tourism professionals, with the contribution of local communities, since this issue is becoming urgent in areas, as Southern Italy, where tourism is rapidly becoming the dominant economy. Particularly, it will also focus on



how and why heritage managers and practitioners must play a more active role in shaping European policies concerning the regulation of key tourism professions, which significantly influence how tourism impacts heritage conservation and interpretation. Fostering dialogue between these sectors, could help achieving more sustainable tourism models that protect and enhance our shared heritage. This presentation aims to stimulate discussion on how to bridge the gap between heritage conservation and tourism management, ensuring that archaeological sites remain accessible and meaningful for future generations while preserving their historical integrity.

1140. HERITAGE 4.0: THE ROLE OF ICT IN CULTURAL TOURISM AND COMMUNITY ENGAGEMENT

**Contribution format:** Oral  
**Contribution authors:** Xavier Roda Gilabert (Departament de Prehistòria, Universitat Autònoma de Barcelona) – Susana Vega Bolívar (Departament de Prehistòria, Universitat Autònoma de Barcelona | Associació Recerca i Difusió del Patrimoni Històric, Centro I+D) – Javier Sánchez-Martínez (IPHES-CERCA, Institut Català de Paleoecologia Humana i Evolució Social, Universitat Rovira i Virgili | ICArEHB, Universidade do Algarve) – Jorge Martínez-Moreno – Paloma González Marcen – Rafael Mora Torcal (Departament de Prehistòria, Universitat Autònoma de Barcelona)

Archaeological and cultural tourism has emerged as a real game changer for the town of Camarasa, located in the Spanish Pre-Pyrenees, thanks to the valorisation of two significant sites: Roca dels Bous and Cova del Tabac, both with the highest level of protection granted by the administration (BCIN). The Neanderthal site of Roca dels Bous pioneered the use of digital tablets to provide an interactive experience that has been running successfully for 15 years. This initiative has positioned the site as a benchmark in heritage outreach, attracting a growing number of visitors and generating a positive economic impact for the municipality. Meanwhile, the Cova del Tabac, a UNESCO World Heritage Site, preserves a panel of rock art and archaeological materials linked to the earliest Neolithic settlements in the region. The popularity of the cave among hikers is proof of its importance and the value of protecting and promoting it. The collaboration between the Universitat Autònoma de Barcelona and the non-profit organisation Associació Recerca i Difusió del Patrimoni Històric (ARDPH), dedicated to the conservation and dissemination of the local archaeological heritage, has led to innovative approaches that integrate research, dissemination and community participation. Cultural facilities such as the Espai Orígens visitor centre and the Didactic Archaeological Park offer leisure activities and workshops on prehistory, fostering informal learning and responsible tourism. This sustainable tourism model has been strengthened by digital technology which facilitates the interpretation of heritage and the transmission of knowledge. Current projects are using virtual reality (VR) and mobile applications to develop immersive experiences, including serious games and self-guided tours. Our presentation illustrates the challenges and opportunities involved in consolidating a sustainable tourism hub, with a focus on improving local infrastructure, revitalising the local economy and ensuring the preservation of cultural heritage in rural areas.

2008. PARTICIPATORY APPROACHES TO SUSTAINABLE CULTURAL TOURISM: THE NEXTGEN HERITAGE EXPERIENCE IN TACKLING SOCIAL AND CLIMATE CHALLENGES

**Contribution format:** Oral  
**Contribution authors:** Marco Paladini – Martina Bergamo (Ca’ Foscari, University of Venice) – Jacopo Paiano (University of Trento) – Duna Viezzoli – Paola Peratello – Anna De La Torre Fornell – Margherita Zucchelli – Simona Bravaglieri – Giulia Ferro (Ca’ Foscari, University of Venice)

Cultural and archaeological tourism is an essential resource for many European local economies, particularly in sites recognized as World Heritage. However, the uncontrolled growth of the sector has generated negative effects, including the “vitrification” of local communities, the exclusion of residents from decision-making processes, and the unequal distribution of economic benefits. In many areas, mass tourism has led to the creation of destinations “built for others,” where residents no longer recognize themselves in the places they inhabit. Moreover, global factors such as climate change and migration are reshaping the relationship between heritage and society, highlighting the urgent need for social sustainability in cultural tourism management models, to reverse a process of progressive detachment of local communities from cultural heritage. The event NextGen Heritage – The Transformative Nature of Participatory Cultural Heritage, held in Venice between January and February 2025 as part of the CHANGES-CREST project, demonstrated the potential of participatory approaches in addressing these challenges. Through the collaborative management of thematic working groups, innovative strategies were explored to integrate social sustainability and environmental responsibility into heritage enhancement. Discussions focused on the impact of climate change on World Heritage sites and the role of migration in redefining cultural narratives and local identity. This experience highlighted how the active involvement of diverse stakeholders can enrich tourism and heritage management, fostering more inclusive and balanced development. This paper presents the results of an interdisciplinary dialogue on how participatory models can promote

a more sustainable and equitable form of tourism. Implementing effective strategies that integrate conservation, economic sustainability, and social inclusion is essential to preserve cultural and archaeological heritage while ensuring the well-being of local communities and addressing the global challenges shaping contemporary heritage management.

2018. NEXTGEN HERITAGE: COMMUNITY ENGAGEMENT FOR SUSTAINABLE TOURISM IN ITALY

**Contribution format:** Oral  
**Contribution authors:** Francesca Benetti (Independent) – Diego Calaon (University of Venice)

Building on the principles of the Faro Convention, NextGen Heritage explores sustainable tourism and cultural heritage management strategies in Italy through a community-driven approach. As part of the larger ‘CHANGES’ project, funded by the post-pandemic EU National Recovery and Resilience Plan (PNRR), this initiative aims to reimagine cultural heritage management by empowering local communities. This presentation analyses the tourism-focused strand of NextGen Heritage, examining a pilot grant programme designed to develop ‘bottom-up’ and green sustainable tourism solutions. The tender received 55 bids, 31 from organizations based in centre-south Italy and 24 from north Italy. By evaluating submitted proposals, this presentation will unveil critical challenges and pitfalls that the sector needs to face to move forward (e.g. a certain ‘community washing’, i.e. an unsubstantiated claim of community engagement and empowerment to reinforce the business case of the organisations). Simultaneously, the analysis identifies promising community-led approaches that offer potential pathways for more inclusive, sustainable cultural heritage tourism development.

863. COMMUNITIES ENGAGEMENT. AWARENESS-RAISING ACTIVITIES AND THIRD MISSION WITHIN THE OPERA PROJECT

**Contribution format:** Oral  
**Contribution authors:** Margherita Perri – Paolo Brocato (Università della Calabria, Dipartimento di Studi Umanistici) – Paola Palmentola – Ginevra Coppola (Università degli Studi di Bari, Dipartimento di Ricerca e Innovazione Umanistica) – Antonio Lio (Università della Calabria, Dipartimento di Studi Umanistici) – Virginia Stasi (Independent) – Filippo Trotta (Università degli Studi di Bari, Dipartimento di Ricerca e Innovazione Umanistica)

This intervention aims to illustrate the third mission activities carried out by the Universities of Calabria and Bari and by CNR-IMAA within the framework of the PRIN PNRR 2022 project “Oenotrians and Peucetians: Extensive Research Activities (OPERA). Archaeology, cultures, relationships (IX-III century BCE).” The project is focused on studying the relationships between the ancient Oenotrian and Peucetian cultures. The investigations were directed towards the case studies of Francavilla Marittima, Gioia del Colle and Castellaneta, indigenous contexts distinct from the Greco-Roman culture, which archaeological research has predominantly concentrated on, overlooking the history and monuments of the indigenous populations, thus slowing down the reconstruction of the ancient landscape, also for purposes of valorization. The project’s objective was to complement archaeological investigations with awareness-raising activities aimed at actively engaging local communities through an approach focused on making cultural heritage accessible and meaningful to all members of society. These initiatives - designed and organised on the basis of the results of surveys conducted among citizens to assess their perceptions of archaeological heritage - have not only promoted the exchange of knowledge and the active participation of communities, but have also acted as a catalyst for sustainable development, offering new opportunities to implement archaeological tourism strategies and to carry out actions to promote cultural heritage.

125 INTERREGIONAL PERSPECTIVES ON THE 6TH-5TH MILLENNIA BC IN THE NEAR EAST: UNDERSTANDING SOCIETIES AND TECHNOLOGIES

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** Near East, Neolithic, Chalcolithic, Social organisation, Technology, Interregional contacts  
**Session organisers:** Milena Gošic (University of Belgrade) – Ianir Milevski (National Scientific and Technical Research Council) – Dina Shalem (—) – Anna Bach Gomez (Universitat Autònoma Barcelona)



SESSION ABSTRACT

During the 6th and 5th millennia BC, various societies emerged across the Near East, including the Levant, Anatolia, Mesopotamia, the Caucasus, and the Iranian Plateau. Over decades of research, these societies were classified into cultural complexes such as Shulaveri-Shomu, Halafian, Ubaid, and Ghassulian, spanning both Pottery Neolithic and Chalcolithic periods. These societies exhibit certain similarities in their material culture, such as ceramic styles, and their economy and technology, such as a household-oriented organization. These parallels attest to contacts of a yet poorly understood nature. The intensity of the contacts and the inability of archaeologists to sufficiently understand them are apparent when it comes to the introduction of extractive metallurgy in the region during the 5th millennium. We understand that to gain such insights, we must first obtain a more detailed picture of the contemporary societies in various regions of the Near East with emphasis on the economies and technologies they practised and the resources they used. We thus invite papers, including early-stage preliminary results, dealing with early metallurgy and its products, pottery and lithic industries, as well as iconographic manifestations of these societies. We also encourage discussion of the social organization of these crafts, as well as other aspects of social organization in any of the regions of the Near East. First and foremost, we encourage papers to take the interregional perspective to any of these questions.

CONTRIBUTION ABSTRACTS

459. THE EARLIEST NEOLITHIC IN THE SOUTH CAUCASUS IN THE FIRST HALF OF THE 6TH MILLENNIUM

**Contribution format:** Oral  
**Contribution authors:** Svend Hansen (Deutsches Archäologisches Institut, Eurasien-Abteilung | Freie Universität Berlin)

Did the first farmers in the South Caucasus come from the area of the Halaf culture and bring a Neolithic package with them? Various excavations over the last twenty years have provided new data and raise serious doubts about this old thesis. Based on our excavation in Aruchlo in Georgia, the new results are summarised. Enigmatic ditches were repeatedly dug in the settlement, which partially destroyed the buildings and over which new buildings were erected. The results of the DNA analyses show that the Neolithic settlers from Anatolia soon mixed with the local hunter-gatherer groups. All settlements in the South Caucasus were abandoned by 5400 BC at the latest. Neolithisation in the South Caucasus must be regarded as a failed experiment. There is no evidence of farming settlements for the following 700 years. These new insight will be compared with the contemporaneous developments of the Early Neolithic on the Balkan peninsula.

116. LATE CHALCOLITHIC ARCHAEOLOGICAL INTERACTIONS: SOUTH CAUCASUS, ANATOLIA, AND SOUTHERN LEVANT

**Contribution format:** Oral  
**Contribution authors:** Magda Batiashvili (European University)

The Late Chalcolithic period in the South Caucasus (Georgia, Armenia, and Azerbaijan) lacks a unified chronological framework. However, data from well-studied sites, such as Dzedzvebi in Georgia (dated to approximately 4328–4055 BC), Mentesh Tepe in Azerbaijan (4320 - 3990 BC), and Areni-1 in Armenia (3967–3800 BC), offer a basis for comparisons and potential connections with other regions. In this case, the primary focus will be on the relationships with South Levantine metallurgical contexts. This topic has been the subject of considerable scholarly debate, driven mainly by the evidence of the Nahal Mishmar hoard, which features highly sophisticated lost-wax casting techniques (cire perdue) and contains As-Sb alloys not present in the local geology. Previous research suggests that these metals could have originated from the South Caucasus, which is known for its rich polymetallic geology, particularly Fahlore type Cu-Sb-As ores, or possibly from Anatolia, which is geographically closer. Given that Anatolia was a major supplier of obsidian to the Levant during the Neolithic, similar exchanges might have occurred during the Chalcolithic period. To address these research gaps, the aim of this paper is to review literature from the post-Soviet era to the present, examine material culture, metallurgical workshops, and trace the movement of raw materials, with a particular focus on metallurgical practices in the South Caucasus during the Late Chalcolithic period. This approach also aims to raise awareness of the region’s archaeology, which often receives limited attention, mostly due to language barriers preventing the circulation of knowledge and new findings.

615. REVISITING TEGHUT. CRAFT PRODUCTION AND TECHNOLOGICAL PRACTICES IN THE LATE CHALCOLITHIC SOUTHERN CAUCASUS: PRELIMINARY INSIGHTS FROM GROUND STONE TOOL STUDIES

**Contribution format:** Oral  
**Contribution authors:** Karolina Hruby (Postdoc Fellow of Minerva Stiftung, Eurasia Department, Deutsches Archäologisches Institut, Berlin | Institute for Prehistoric Archaeology, Freie Universität

Berlin) – Mark Iserlis (Eurasia Department, Deutsches Archäologisches Institut, Berlin)  
– Ruben Badalyan – Armine Harutyunyan (Institute of Archaeology and Ethnography, National Academy of Sciences of Armenia, Yerevan)

The 5th millennium BC is a period of major changes in technology and social complexity throughout south-west Asia. In the southern Caucasus, however, it is characterized by a major settlement decline and relocation, and a patchwork of local phenomena that are still poorly understood. The most prominent of these is the so-called Leylatepe culture/phenomenon, the appearance of which marks the transition between the 5th and 4th millennium BC and the beginning of the Late Chalcolithic in the region. This phenomenon is typically associated with the introduction of some of the typical Chalcolithic technological innovations within the southern Caucasus, including wheel-made pottery and copper metallurgy. Its links with the Upper Mesopotamian Late Chalcolithic have been emphasized in the few existing studies, presenting it as a uniform case of migration from the south. Recent studies of the Late Chalcolithic deposits in the Karabakh steppe provide a much more nuanced picture of the Leylatepe phenomenon, suggesting significant intra- and inter-settlement dynamics in architecture, subsistence strategies, and technological choices. However, data from other parts of the southern Caucasus are very limited. The current paper focuses on the collection from Teghut – Late Chalcolithic settlement, located in the Ararat Valley. In the course of works focused on the review and analysis of the material culture from the 1960s excavations at Teghut, a small assemblage of ground stone tools from the site was studied for the first time. We present the ground stone tool collection from a typological and technological perspective and in the context of the technological habitus within the settlement. We also discuss the findings in the frame of the Leylatepe phenomenon as a whole, comparing it with the available data coming from the contemporaneous and earlier (Neolithic) sites in the region.

337. FROM WALLS TO VESSELS: THE SHIFTING BULL IMAGES AT LATE NEOLITHIC ÇATALHÖYÜK AND ANATOLIA

**Contribution format:** Oral  
**Contribution authors:** Patrycja Filipowicz (Faculty of Archaeology, Adam Mickiewicz University)

The Late Neolithic period in Central Anatolia witnessed a significant transformation in imagery, marked by the abandonment of figurative wall paintings and reliefs inside the houses. This paper examines the persistence of the bull motif, which reappeared in new, portable forms, within new contexts. Notably, bucranium appears on vessels in Late Neolithic/ Early Chalcolithic sites in the Lake District and Cappadocia. I focus on recent research conducted by Adam Mickiewicz University in the previously unexplored part of the Çatalhöyük mound: East Area, where scattered potsherds with bucranium motif were uncovered. Some of these sherds were attached to walls in non-domestic buildings, suggesting a novel practice in Late Neolithic Çatalhöyük, with no known parallels in the Anatolian Late Neolithic. I argue that this practice may be linked to the funerary sphere. Furthermore, this practice could echo Early Neolithic traditions, such as those at Körtik Tepe, where broken stone vessels were deliberately placed in graves as part of a communal commemorative act. Whether these potsherds indicate long social memory of earlier Near Eastern traditions or represent a distinct local innovation, they indicate a continued attachment to the bull image and reveal significant changes of the funerary practices during the last phases of Çatalhöyük’s occupation. The bucranium motif thus emerges as an important element in the iconography of post- Neolithic communities.

2031. TRADITIONS, INFLUENCES AND MANIPULATIONS: PERCEIVING CHALCOLITHIC SOCIETIES IN NW IRAN

**Contribution format:** Oral  
**Contribution authors:** Soheil Salamat (Freie Universität Berlin) – Judith Thomalsky (Deutsches Archäologisches Institut)

Earliest archaeological investigations have drawn a pattern of cultural relations that was based a priori on dispersing comparable ceramic styles—from West (Northern Mesopotamia) to East (the Iranian Plateau)—which later merged into rather simplistic core–periphery models. This perception has led particularly in Iranian archaeology to the adoption of apparently problematic cultural classifications such as “Ubaid-manipulated” or “Uruk-related” in recent decades. But what exactly is addressed when using such terms? How can we scale “cultural interaction”? Especially in the region under study (NW-Iran), relevant evidence of such interactions has remained confined to a very limited (and simplified) surface of ceramic styles, leading to circular reasoning that hinders our ability to encompass the overarching cultural aspects of the prehistoric society underlying the evident regional interconnectivity. Moreover, little is known about the settlement organization, economy, and social hierarchy of these communities. New data from the 6th–4th millennium BCE sites in the vicinity of Lake Urmia in NW-Iran re-echo our impression of strong cultural interconnectivity in the region. Equally, these new findings strongly recommend a socio-conceptual reconsideration of the underlying agents and requirements. Possible modes



of influence and adoption, scales of contacts, as well as a basic understanding of the economy and organization of the relevant societies, are currently examined in the ongoing Iranian–German joint project. This contribution will shed light on various scenarios of interregional dynamics that underpinned Chalcolithic societies in NW-Iran, such as the Dalma tradition on the one hand, and the “Northern Ubaid material culture” which spread until the SW-shoreline of Lake Urmia.

**1065. BURIALS IN THE LATE NEOLITHIC: TELL HALULA (SYRIA) IN THE ARCHAEOLOGICAL CONTEXT IN NEAR EASTERN VII AND VI MILLENNIUM**

**Contribution format:** Oral  
**Contribution authors:** Miquel Molist – Olivia Orri – Josep Anfruns – Anna Bach-Gómez (Universitat Autònoma de Barcelona)

In the Late Neolithic period, funerary practices exhibit significant variability concerning both the funerary gestures and the associated structural elements. The funerary assemblage identified at the Tell Halula site during the PreHalaf and Halaf phases, which has not been subjected to study until now, offers valuable insights into the populations inhabiting the Middle Euphrates region during the 7th to 6th millennium BCE. This study aims to conduct a thorough examination of the graves, adopting a holistic perspective that interrelates the data derived from various analyses and investigations pertaining to this innovative funerary ensemble. Furthermore, the detailed analysis of the graves will emphasize their characteristics in relation to the habitat, associated artifacts..., which allows a socioeconomic interpretation of the living society. This insight into the Middle Euphrates data from Syria and Turkey will make it possible to make a decisive contribution to the forms of population mobility through the analysis of grave goods.

**680. PLANT CONSUMPTION AND INDIRECT EVIDENCES IN THE 6TH MILLENNIUM CAL BC: EXPLORING PALAEOBOTANICAL DIVERSITY IN UPPER MESOPOTAMIA**

**Contribution format:** Oral  
**Contribution authors:** Míriam Gómez Andreu – Anna Bach Gómez (Universitat Autònoma de Barcelona) – Ramon Buxó Capdevila (Museu d’Arqueologia de Catalunya) – Walter Cruells Banzo – Miquel Molist Montaña (Universitat Autònoma de Barcelona)

The study of plant remains and grinding tools provides crucial insights into dietary practices and plant resource management in prehistoric societies. In Upper Mesopotamia, the 6th millennium cal BC marked a period of significant agricultural and subsistence transformations. This paper examines palaeobotanical evidence associated with grinding stones from archaeological contexts to explore plant processing techniques and the diversity of plant species consumed during this period. Through the analysis of charred macroremains and microbotanical residues, we assess the role of cereals, legumes, and wild plant species in the diet of Halaf communities. The presence of grinding stones suggests intensive plant processing, possibly linked to food production, ritual activities, or medicinal practices. Furthermore, variations in plant assemblages across different sites indicate regional adaptations and resource exploitation strategies. This study, based on Chagar Bazar and Banahilk materials, highlights the complexity of agricultural systems and their reliance on both domesticated and wild plant resources. By integrating archaeobotanical data with indirect evidences, we contribute to a broader understanding of subsistence economies and plant consumption diversity in consolidated farming communities of Upper Mesopotamia. The findings underscore the dynamic interactions between humans and plants, shaping subsistence strategies in the early stages of agricultural development from Upper Levant to Tigridian area.

**21. EARLY AND MIDDLE CHALCOLITHIC POTTING PRACTICES IN THE CENTRAL LEVANT: SYRIAN-LEBANESE TECHNICAL TRADITIONS AND INSIGHTS INTO INTERREGIONAL RELATIONS**

**Contribution format:** Oral  
**Contribution authors:** Johnny Baldi (CNRS, UMR 5133 Archéorient)

The evolutionary path by which the Central Levant, between the 6th and 5th millennia BCE, created the conditions for Late Chalcolithic social complexity is almost completely unknown. In the absence of sufficient stratigraphic and architectural data, pottery is the only documentary source that allows us to reconstruct (at least partially and macroscopically) the internal and supra-regional relations of the area corresponding to present-day Lebanon and southern Syria. In a number of recent projects, the application of an anthropological approach to the ceramic technical traditions documented in pottery assemblages from surface surveys and stratigraphic soundings has made it possible to observe some evolutionary lines that show both demic inputs and long-distance cultural borrowings. The picture that emerges is that of a vast area in which the traditional divisions into regions (Levant, Mesopotamia) or “archaeological cultures” (Wadi Rabah, Halaf, Ubaid, etc.) should be deconstructed and eventually discarded in favour of other criteria.

**20. THE EVOLUTION OF THE TRANSREGIONAL CONTACTS BETWEEN THE LEVANT AND EGYPT DURING THE 6TH AND 5TH MILLENNIA BC**

**Contribution format:** Oral  
**Contribution authors:** Gaia Cecconi (—)

The Levant has always been an important intersection between the Near East and Egypt. During the second half of the 6th millennium, most of the Northern Levant sites are stratigraphically related to the Amuq Valley (Amuq C), while in the Southern Levant the Wadi Rabah is prevalent. In the same period, agriculture and pottery were imported from the Southern Levant, first in Lower Egypt (Fayum A), and then in Upper Egypt. During the 5th millennium, the Levantine Chalcolithic cultures (Amuq D-F, Qatifian, Ghassulian, etc.) interface with several Egyptian cultures (e.g., Merimde, el-Omari, Tasian, Badarian, early Buto and Naqada), but the influences from Egypt to Levant begin and increase as one approaches the Early Bronze Age, arriving to the Eneolithic Byblos. This paper will provide an overview of the evolution of the interactions and the transmission of products and ideas between the Levant and Egypt during the Late Pottery Neolithic and the Chalcolithic periods (6th- 5th millennia BC). Starting from the essential bibliography and the latest studies, this study will draw a chronological map regarding the diffusion of technologies (pottery, metallurgy, ivories, lithics, etc.) and iconography (figurines, decorative motifs, etc.) between the two regions, trying to analyze the social and economic implications related to these connections and to promote future discussions.

**580. LINKED BY DESIGN: GLAZED STEATITE BEADS BETWEEN BADARI AND BE’ER SHEVA AND THE OPERATION OF SOCIAL POWER**

**Contribution format:** Oral  
**Contribution authors:** Julian Hirsch (—)

Contact between Badarian Egypt and the Late Chalcolithic Southern Levant has long been recognized, manifested primarily in small quantities of artifacts from one region found in sites of the other. These have been characterized as the result of sporadic exchange. While this exchange may indeed have been sporadic, the apparent introduction of metallurgy from the Levant to Egypt, near-identical designs in certain art media, and identical beads made from glazed steatite found in both regions may indicate that these exchanges may have been imbued with greater social significance. In this presentation, I focus on glazed steatite beads, objects glazed with copper-mineral colorant and found in large numbers in both regions. As no steatite is found in the Levant and since several scholars argue that 5th millennium copper found in Egypt originated in the Levant, I argue that these objects were mutual products, benefitting individuals living in both areas, and implicating them in mutual dependencies. Building on models emphasizing the link between the ritualization of copper smelting, specialized knowledge, and the operation of social power in the 5th millennium southern Levant, I argue that glazed steatite beads possessed similar linkages, and that the symbolic and social significance of these beads was also a result of the origin of their raw materials, the long-distance journeys involved in the extraction of those materials, and the knowledge of and contact with individuals living in other regions necessary for their successful creation. This suggests that the operation of social power in both 5th millennium Egypt and the Levant was to some extent linked to direct connections with far away regions and their inhabitants, as expressed through select objects.

**18. ECONOMICS AND SOCIETY OF THE 6TH-5TH SOUTHERN LEVANTINE CULTURES. LOOKING INWARDS, LOOKING OUTWARDS**

**Contribution format:** Oral  
**Contribution authors:** Ianir Milevski (National Scientific and Technical Research Council, Argentina. German Archaeological Institute)

The southern Levantine cultures of the 6th-5th millennia BC have consistently been described in relation to both the preceding and subsequent phases of the region’s late prehistory. These cultures primarily experienced the second phase of the Neolithic Revolution, characterized by the exploitation of animals for secondary production, which continued until the end of the Late Chalcolithic. At the end of this period, the domestication of the donkey paved the way for a significant exchange of commodities. While communities in the Late Pottery Neolithic/Early Chalcolithic (5800-4500 BC) of the southern Levant were also part of a broader interaction sphere extending to the Near East and beyond, the Late Chalcolithic (4500-3800 BC) maintained some of these connections but evolved in new directions. It developed an internal exchange system, a more complex division of labour, and a distinctive iconography. In both phases, the directionality of trade remained similar: asymmetrical along longitudinal routes and symmetrical along transverse routes. The quantity and variety of traded goods increased—such as ceramic vessels, basalt bowls, and copper objects—and their production was primarily carried out by craftsmen deeply involved in local communities. However, during the Late Chalcolithic, craft production and specialization became more standardized, likely under the influence of some form of authority for specific commodities, including copper items, ivory, and other products. In this context, pottery technology advanced with the introduction



of the tournette, and copper metallurgy not only promoted craft specialization but also introduced a new type of luxury elements into society.

529. ICONOGRAPHIC DEPICTIONS AS INDICATORS OF CULTURAL INTERACTIONS AND SOCIAL SHIFTS IN THE SOUTHERN LEVANT AND BEYOND (6TH–5TH MILLENNIA BC)

Contribution format: Oral  
Contribution authors: Dina Shalem (—)

Iconographic expressions often serve as key indicators of cultural differences, connections and influences, offering insights into shared beliefs. In some instances, these expressions are widespread across large regions, while in others, they highlight local cultural variations. In rare cases, they may reveal connections that might otherwise remain hidden. This presentation examines socio-cultural continuities and changes from the 6th–5th millennia, as reflected through iconographic expressions in the southern Levant, within the broader context of the Ancient Near East. Some examples include South Levantine female anthropomorphic figurines carved in stone from the 6th millennium BC, which show similarities to figurines from northern regions of the Ancient Near East, while clay figurines often exhibit distinct differences. Zoomorphic iconography, continuing long-standing Near Eastern tradition of small, simply crafted figurines, undergoes changes in the last quarter of the 6th millennium BC. Additionally, extraordinary iconographic expressions emerge in the southern Levant in the middle of the 5th millennium BC, reflecting rapid socio-cultural changes driven by specific circumstances.

1540. THE SOCIAL AND SYMBOLIC VALUE OF RAW MATERIALS AND LONG-DISTANCE EXCHANGE: THE VIEW FROM THE SOUTHERN LEVANT

Contribution format: Oral  
Contribution authors: Milena Gošić (University of Belgrade)

The origin of raw materials and artefacts and their exchange is a long-standing archaeological research topic. The advancement of archeometric techniques used for provenance analyses has facilitated connecting archaeological artefacts, including metals and by-products of metallurgical processes, such as slags and ores, with the natural deposits of raw materials used in their production. The exchange networks that facilitated the movement of raw materials are investigated mainly from the point of view of the economy and related issues of social organisations, such as control of resources and establishment of social hierarchy. The present paper explores how the symbolic significance of the origin of raw material, factual or fictional, can be significant for the ritual importance of artefacts. Considering that the southern Levantine Chalcolithic artefacts produced from materials acquired through the long-distance exchange, such as copper, copper-based alloys and ivory, were predominantly ritual objects, it is reasonable to conclude that the material and the exchange have multifaceted significance that extends beyond just economic transactions to include cultural and symbolic dimensions.

126 LONGEVITY SECRETS OF ANCIENT CONSTRUCTIONS: EXPLORING AND BEING INSPIRED BY BUILDING MATERIALS AND CONSTRUCTION TECHNIQUES THAT HAVE SURVIVED THE CENTURIES

Session theme: 1. On artefacts and beyond  
Session format: Regular session  
Session keywords: building materials, architecture, scientific investigations, restoration, long time use  
Session organisers: Mircea Negru (University of Bucharest | Spiru Haret University Bucharest) – Pavla Tomanova (Institute of Archaeology of the Czech Academy of Sciences, Prague)

SESSION ABSTRACT

This session aims to highlight an exciting, but sometimes slightly underestimated research topic of archaeological building materials and ancient construction techniques. Building materials contain a wealth of essential information and interesting stories about monuments under investigation, the surrounding environment, and the builders’ knowledge. With every construction, we can ask questions like: Why are these materials selected for construction? Where did the building materials come from? What caused the quality and durability of buildings that have survived over centuries. What knowledge was essential to build up that construction? Ancient building materials and construction techniques proven through centuries of use are suitable for monument conservation and restoration of archaeological sites. All transdisciplinary perspectives are welcome related to building materials and construction techniques. Scientific investigations and experimental archaeology papers are welcome to present the development of construction techniques over time and analysis of the unseen knowledge and properties of so-seen archaeological building materials. This session is not limited to any chronological period, case

studies from Prehistory until Modern Era are invited. We hope to discuss buildings of various purposes (military, civilian, religious, infrastructures so on) and all kinds of materials (wood, clay, brick, stone and other ones). We welcome approaches to economic, social and cultural aspects, as well as approaches to investigation methods and visions for future research.

CONTRIBUTION ABSTRACTS

887. MUDBRICK ARCHITECTURE AND PRODUCTION FROM THE PREHISTORIC SETTLEMENT AT THESSALONIKI TOUMBA, GREECE: AN ARCHAEOLOGICAL AND EXPERIMENTAL APPROACH

Contribution format: Oral  
Contribution authors: Andreas Samouris – Stelios Andreou – Sevasti Triantaphyllou (Aristotle University of Thessaloniki)

The use of mud as building material has persisted since the early prehistory to the modern times worldwide. Sun-dried mudbricks have been extensively utilized across various archaeological contexts. Within this broad spatio-temporal framework, despite adhering to common origins, the production and use of mudbricks, display notable variability regarding the various stages of construction. While mudbrick structures have traditionally been examined as part of material culture, their social significance is unquestionable and thus building remains can be viewed in both technological and societal contexts. Decisions over which building materials to use, how and when to incorporate them, and how to shape and utilize the final product—the mudbrick—are considered widely to have been influenced by cultural traditions and social beliefs. In central Macedonia, mudbricks constitute the primary building material in prehistory since the 5th mill. BCE to the 10th c. BCE while the main settlement type, that of tells, are in fact formulated through the continuous use of mudbrick architecture. The Late Bronze Age tell settlement of Thessaloniki Toumba constitutes a perfect case study for the application of a multidisciplinary approach where archaeological and experimental paradigms can be combined. This presentation aims to showcase the preliminary results of such an analysis where the chaîne opératoire of mudbricks production and construction from the prehistoric Thessaloniki Toumba settlement will be investigated.

1173. BEHIND THE BRICK: INVESTIGATING THE EARTHEN CONSTRUCTION TECHNIQUES AT KUNARA

Contribution format: Oral  
Contribution authors: Pantelitsa Mylona (Department of Antiquities, Republic of Cyprus) – Aline Tenu (CNRS - UMR 7041 ArScAn - Équipe HASAÉ)

Kunara is located in Iraqi Kurdistan, near the modern city of Suleymaniyah, on the right bank of the Tanjaro River, a perennial stream of the Tigris basin. It covers about 7-9 ha and comprises an upper town to the west and a lower town to the east. Excavations revealed levels, mostly dated to the last part of the 3rd millennium BCE. The discovery of a finely carved cylinder seal, sealings, elaborated vessels, metal items, and exogenous material such as marine shells or obsidian, as well as more than 100 cuneiform tablets and fragments indicate Kunara was a significant regional centre. Public edifices are built with a stone footing and a superstructure made of earth. The identification of architectures was a challenge because the use of sundried mudbricks was much more limited than expected. According to field observations it seems that in Kunara several techniques of earthen construction co-existed. The field study revealed three main implementation methods for the walls: some walls were constructed with pre-fabricated modules (kinds of mudbricks but not in the usual sense of the term because they are not sudried) and plaster; others with long earthen layers superimposed, characterized as the cob technique, and the third one the use of mud lumps. Both were found in different structures at Kunara and they were used at the same time, often in the same building. The geoarchaeological study using soil micromorphology aims to describe the chaîne opératoire of the building techniques, from the collection of raw material to the implementation methods. It showed the use of fine sediments that have been carefully selected or sieved and then prepared in humid state. Different facies of mudbricks have been identified and their differences lay mainly on inclusions and pedological features.

756. GREEK COLUMNAR ARCHITECTURE: DESIGN, MATERIAL AND CONSTRUCTION TECHNIQUE

Contribution format: Oral  
Contribution authors: Therese Emanuelsson-Paulson (Stockholm University)

When discussing the development of monumental columnar architecture in Ancient Greece, traditional research has always cited the ancient authors claiming that said development was a linear evolutionary development from wooden post to stone columns resulting in the perfect marble temples. However, the evolution of the Greek columnated building was not that simple, nor can it be said to be linear. A unified evolutionary development of the Greek architecture is a simplified explanation, for a much more complex phenomenon. Different materials were chosen in different regions, for different reasons in different periods. Most commonly local materials were used



and we can see that in some regions the material was changed depending on the design of the building, where as in other regions the design was altered instead of the material. Much attention has traditionally been given to materials that are expensive today, such as marble, but research sometime overlook that the same material can be inexpensive if its locally available. More common stone might also have been an expensive choice, were they not locally available. The choice of material can be a conscious choice rather than only a chronological development. The construction techniques used at these sites are interesting enough not changing with the development of the architectural styles. A town could copy a new style from somewhere else, but the construction techniques and the materials, often remains the same. One continued to construct as one always had in that location. My research aims to understand how and when changes were made in Greek columnar architecture and the correlation between regional styles, construction techniques and materials.

275. BETWEEN THE WALLS: THE USE OF SHELLS IN THE CONSTRUCTION OF ROMAN WALL PAINTINGS AT BOCA DO RIO (BUDENS, PORTUGAL)

**Contribution format:** Oral  
**Contribution authors:** Daniela Martins (University of Algarve | University of Murcia | CEAACP) – Beatriz Pinto (University of Algarve | ICArEHB) – João Bernardes (University of Algarve | CEAACP)

The Romans were known for their capacity for construction, their architectural skills, and their ability to decorate spaces. This study examines the Roman wall paintings from Boca do Rio, an archaeological site located in the coastal zone of southern Portugal, with a focus on the presence of shell remains within the construction materials. The research aims to explore the significance of these marine inclusions in relation to the construction techniques, material acquisition, and the wider socio-economic context of the site. A multidisciplinary approach combining pictorial and zooarchaeological analysis has been employed to investigate the composition, origin, and potential functionality of the shells. Preliminary results indicate a strategic use of local marine resources, which may have contributed to the durability and qualities of the wall paintings. The findings shed light on the intersection of construction techniques, decoration and marine remains in Roman Lusitania, highlighting the role of coastal resources in building methods and artistic production.

683. THE PRODUCTION OF CERAMIC CONSTRUCTION MATERIALS IN THE ROMAN DACIA INFERIOR (MALVENSIS) PROVINCE

**Contribution format:** Oral  
**Contribution authors:** Mircea Negru (University of Bucharest | University of Craiova | Spiru Haret University Bucharest)

Construction materials were essential in building the fortifications, urban and rural settlements, as well as Roman farms in the Roman province of Dacia Inferior (Malvensis). Ceramic construction materials are specific to this province’s plain and hill areas, without missing those in the mountain area. The production of construction materials was possible thanks to the clay resources, widespread in the studied region. The production workshops were used by both military and civilians. The military workshops can be identified by the stamps of the military units that built the Roman fortifications, whether they were detachments of legions or auxiliary troops. Very likely, these also produced materials for civilian settlements of military families, near the Roman fortifications. The civilian workshops ensured the supply of construction materials for the needs of the civilian population in the urban, rural or Roman farms. The workshops at Romula can be attributed to civilian production, while the one at Enosesti-Acidava could also have a both military and civilian destination, being discovered in the civil settlement of the Roman fort. In these workshops, bricks of various shapes (rectangular, square, round), with variable dimensions, and tiles were made. Also, tubes for the hypocaust or water supply and decorated functional elements, such as antefixes, were produced. Scientific laboratory investigations indicate specific properties of these materials, among which we emphasize, the quality and long-term reliability, compression resistance, etc., they being preserved in perfect condition until today, being still usable, as they were almost two millennia ago. Considering the variations in the properties of the raw material, we can assume that only the technological stages could contribute to their quality and reliability.

2127. UNCOVERING HISTORICALLY RELEVANT PATTERNS FROM INTERDISCIPLINARY DATA: THE CLAY IMPRINTED STAMPS OF THE ROMAN CASTRUM OF POTAISSA

**Contribution format:** Oral  
**Contribution authors:** Cristina Mircea – Ioan Gabriel Mircea – Agnes Gal – Sorin Nemeti (Babes-Bolyai University)

An interdisciplinary approach combines computer vision and deep learning techniques to properly cluster Roman legionnaire stamps from the Roman castrum of Potaissa (Turda, Romania). It also employs geological analysis of the paste used for the tiles and bricks used as canvas for the stamps to unveil more profound aspects of the lives

of Roman legionnaires not only in the province of Dacia but in the larger context of the Roman Empire. Having as input several hundred bricks and tiles manufactured by Roman soldiers in the castrum of Potaissa, a pipeline that combines the data obtained from the automated visual analysis of 2D images of the stamps captured in controlled lighting conditions with numerical information describing the geological composition used for the tiles themselves is proposed to determine and analyze the underlying patterns that might occur in the interdisciplinary data. The objective is to explore the data more deeply, using state-of-the-art machine learning techniques for unsupervised and supervised learning and proper data visualization instruments. This will allow us to investigate patterns that might provide better insight into the history of the Roman castrum, its evolution over time, and its purpose in the larger context of the Empire.

614. A BIOMIMETIC PREPARATION METHOD OF CALCIUM OXALATE FILM FOR THE PROTECTION OF STONE BUILDING HERITAGE

**Contribution format:** Oral  
**Contribution authors:** Lu He (Northwest University | Sorbonne University) – Fuwei Yang (Northwest University) – Maguy Jaber (Sorbonne University)

Due to the increasing severity of environmental pollution, stone building heritage is often damaged in open-air environments by factors such as rain erosion, dissolution of settled acidic particles, and acid rain, etc. The protection of stone cultural heritage faces significant challenges. Calcium oxalate is widely adopted as a protection material to prevent stone building from environmental corrosion thank to the excellent weather resistance. However, compared with the calcium oxalate film found in nature, the artificial calcium oxalate film usually has coarse particles and is easier to peel off the substrate. Calcium oxalate films in nature are generally believed to form by the interaction between oxalic acid secreted by microorganism and carbonate stone, they usually have good adhesion with stones. Considering that microorganisms secrete various substances in addition to oxalic acid during their metabolic processes, such as erythritol, this study was inspired by this and used polyols as additives to prepare biomimetic calcium oxalate film. The results indicate that adding polyols during the preparation of calcium oxalate facilitates the formation of films with improved performance. In the presence of polyols, the particle size of calcium oxalate crystals is significantly reduced, the film has a strong adhesion to the substrate resulting it not easy to peel off from the stone. The porosity and water absorption of the stone are reduced, which is beneficial for protecting substrate from erosion caused by external solutions. At the same time, the bionic film will not have a significant impact on the appearance change of stone heritage. In addition, since polyols have a certain hygroscopicity, the moisturizing procedure is not required for the protection of outdoor large stone building and a bionic calcium oxalate film can be formed on the surface. The findings of this research are significant for the practice of stone building heritage conservation.

222. TIMBER REINFORCEMENT IN MEDIEVAL SACRAL ARCHITECTURE. REASONS FOR USE ON EXAMPLES FROM THE CZECH REPUBLIC

**Contribution format:** Oral  
**Contribution authors:** Filip Facincani (Charles University)

There are two types of (not only) medieval reinforcement, i.e. temporary and permanent. The latter was made of both wood and iron and was applied both in the foundations and in the above-ground masonry. Reinforcing elements were installed both horizontally and vertically, or interconnected to form a spatial frame. Some of the reinforcement was fully hidden in the masonry and thus invisible, while others partially passed through the space between the sections of masonry being reinforced. The aim of this paper is to present and discuss the newly discovered fragments of timber reinforcement from around 1300, which were found by the author in the attic of the presbytery of the Church of St. Francis in the St. Agnes Monastery in Prague — one of the most important early Gothic buildings in Bohemia, built between 1238–1245. What is the testimonial value of this particular example and what does it allow us to read in the context of other local and foreign analogies? What circumstances led to the use of timber reinforcement in sacral architecture, when in Bohemia we know them mainly from fortification one? The aim of the paper is to open up a discussion on whether it is possible to answer why this solution was applied here without a laconic statement “for reinforcement” being an acceptable answer.

651. THE ANDALUSI RAMMED EARTH: A SUSTAINABLE MEDIEVAL TECHNIQUE

**Contribution format:** Poster  
**Contribution authors:** Jorge Rouco Collazo (Institute of Heritage Sciences (INCIPIT-CSIC))

Rammed earth walls are one of the most common construction techniques used in the south-central region of the Iberian Peninsula since the Andalusí period. Their versatility in terms of construction materials used within the formwork (ranging from earth to various types of lime mortar, along with masonry) explains their widespread use throughout the medieval period for numerous applications, from fortresses to domestic dwellings.



Their success was such that they became a prestigious construction technique for various Andalusí dynasties from the 11th century onwards, partially displacing other techniques such as ashlar masonry. This versatility also explains the long-lasting presence of rammed earth walls in various forms as part of traditional architecture to this day, due to their durability and adaptability to local resources. In this poster, we present research conducted on medieval rammed earth construction techniques in the southeast of Spain (provinces of Granada and Almería), used in both fortifications and domestic architecture. These techniques have been characterized and described using new technologies for three-dimensional documentation, with the aim of creating a catalog of remains and an evolutionary chronotypology of fortifications. The ultimate goal of the catalog is to contribute to the conservation of these heritage remains and to promote their potential use today as a versatile and low-environmental-impact construction technique.

**1144. A REASSESSMENT OF PRESERVED LATE ANTIQUE WOODEN ARTIFACTS FROM AJDOVSKI GRADEC, SLOVENIA AIMS TO REFINE DATING, CRAFTSMANSHIP, AND ENVIRONMENTAL ADAPTATIONS**

**Contribution format:** Poster  
**Contribution authors:** Daša Pavlovic (National museum of Slovenia)

In the years 1977 and 1978, a cistern was excavated within one of the defensive towers of the Late Antique hill-fort settlement of Ajdovski Gradec above Vranje. Due to its exceptional construction quality, the cistern retained water even after 1,400 years. Within it, 271 wooden artifacts were preserved, including elements of the roof structure, roofing materials, gutters, ceiling, a trough, a ladder, and various smaller utilitarian objects. Some of the most significant artifacts were conserved and exhibited at the National Museum of Slovenia, while the majority were submerged in a large biocide-treated vat in the museum’s basement for long-term preservation. In 2024, a reassessment of the condition of the wooden artifacts in the vat was initiated, and a research plan for 2025 was developed. Preliminary chemical analyses confirmed that the wood is suitable for further radiocarbon dating and isotope analysis. Additionally, dendrochronological analysis will be conducted. The primary objectives of this research are to establish a chronological framework, study wood processing techniques for construction elements and utilitarian objects such as buckets, and obtain data relevant to climatic changes that may have influenced the lifestyle of Late Antique inhabitants. The study also aims to explore how these communities adapted to environmental changes. The poster will present the research plan, methodology, and any preliminary results.

**127 ANCIENT AGROSCAPES. EXPLORING THE COMPLEXITY OF AGRARIAN COMMUNITIES IN A CROSS-CULTURAL AND MULTI-ANALYTICAL PERSPECTIVE**

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** Rural archaeology, Agricultural communities, Production processes  
**Session organisers:** Lorenzo Zamboni (University of Milan - Department of Cultural Heritage and Environment) – Agostin. Sotgia (University of Groningen - Groningen Institute of Archaeology) – Federica Vacatello (Sapienza University of Rome)

**SESSION ABSTRACT**

Agriculture represents one of the most rational relationships between humans and the environment throughout antiquity. Humans select which species to cultivate in the fields and which animals to raise in pastures based on the characteristics of the landscape. However, where possible, they modify the landscap. to enhance its suitability for the needs of the communities present. This relationship is far from being simple or linear, exhibiting a number of complexities that are crucial to understanding various historical dynamics over time. For example, one may consider the insights derived from analyzing the relationship between nucleated centers, the landscape, and marginal or uncultivated areas, such as mid-slope pastures or wetlands. This enables the identification not only of the techniques and timing of resource exploitation, but also of the character of the communities involved and the various forms that they took. Terms like countryside, agrotown or ruralization describe a wide range of different situations that deserve further characterization. Similarly, the social and political relationships that underpin interactions between humans and the land, as well as those within agricultural communities, represent a crucial area of focus. Who owned the land and its produce? What roles did individual actors play in the production process? What impact has human activity had on the landscape and how have people responded to environmental changes? To what extent have non-elites and subalterns been involved in agricultural processes. The proposed session will examine a number of topics, which will be explored through a broad chronological and geographical lens. We welcome contributions that offer theoretical and/or methodological approaches, as well as case studies of specific contexts. It is our contention that only by investigating agrarian landscapes and the actors involved in their exploitation in a cross-cultural and multidisciplinary manner can the vast historical

potential of these elements be fully elucidated.

**CONTRIBUTION ABSTRACTS**

**966. INVESTIGATING THE LONG-TERM DYNAMICS OF INEQUALITY AS AGROSCAPES TRANSFORMED IN THE DEEP HISTORY OF SOUTH ASIA**

**Contribution format:** Oral  
**Contribution authors:** Adam Green (University of York) – Aftab Alam (Aligarh Muslim University)

Agroscapes are a critical feature in the deep history of South Asia. In 2600 BC, a small number of agro-pastoral villages that were dispersed across the Indus basin transformed into some of the world’s first cities. Indus cities were associated with high economic growth and an absence of stratification, with urban communities engaging in impressive feats of collective action and civic governance without a ruling class. These early cities co-existed with thousands of small-scale settlements—”rural” or “satellite” communities that transformed along with their urbanising neighbours. Indus cities de-urbanised around 1900 BC, a period associated with climate change, and the number of small-scale settlements in some regions, such as northwest India, grew. The growth of this agro-scape continued until the rise of the Early Historic around 1300 BC. In this paper, we review evidence for urban/rural differentiation over the course of Indus urbanisation and de-urbanisation, comparing settlement evidence from the Indus civilisation to that from cities associated with the Early Historic Re-urbanisation of northwest India. A better understanding of urban-rural differentiation is critical to our knowledge of Indus urbanisation (and de-urbanisation), and can help frame future research on the long-term trajectory of inequality and governance in South Asia’s deep history.

**1063. AGROTOWN ECONOMICS: A MULTIMETHOD APPROACH TO LANDSCAPE MANAGEMENT OF ECOTONES IN LBA KEFALONIA, GREECE**

**Contribution format:** Oral  
**Contribution authors:** Efrossini Vika (American School of Classical Studies at Athens) – Eleni Papafloratu – Grigoris Grigorakakis (Ephorate of Antiquities Kefalonia and Ithaca)

For Late Bronze Age Greece, the urban vs. rural conundrum has taken up a lot of the discussion on settlement planning and political economy. The urban and rural have been viewed as opposites of a linear trajectory in social development, resulting in a preconceived, restrictive narrative that valued urbanity but miscalculated the role of regional parameters and individual actors. In our study, we present a multimethod approach to the reconstruction of the agro-scape in Late Bronze Age Kefalonia, that includes stable isotope analysis and computational archaeology, with the aim of understanding the structuration of the land, taking into particular account mobility within ecotones and multiple resource management. Although it is well understood that subsistence related activities by default change the environment, the associated territorial and urban planning in Greek prehistory is not fully explored. Our results introduce the idea of organisation in ‘agrotowns’, and discuss the nuanced economics of a decentralised, pluralistic land management system, within the contested semiotics of the Late Bronze Age.

**663. SOWING THE CITY: AGRICULTURE AT THE ROOTS OF URBAN LIFE**

**Contribution format:** Oral  
**Contribution authors:** Agostino Sotgia (RUG - University of Groningen)

According to Aristotle (Politics, Book 7), the ideal location for a city is at the intersection between land and sea and along key communication routes, enabling efficient access to resources and their swift distribution across the region. Centuries later, Italo Calvino (Invisible Cities, 1972) observed that “every city takes its form from the desert to which it stands in opposition,” emphasising the essential relationship between landscape and urban experience. But what happens if the landscape shaping the city, and in which it is immersed, is an agricultural one. This paper explores how agricultural landscapes shaped urban development, focusing on Central Italy during the Early Iron Age, a period when the first urban concepts began to emerge. An analytical methodology was developed by adapting FAO land evaluation techniques into archaeological terms. This approach enabled the reconstruction of agricultural practices, the simulation of food production, and the estimation of population capacities sustained by these early communities. Beyond this specific case study, the paper also offers a broader theoretical reflection on the critical role of agriculture and those engaged in it within historical processes, contributing to a deeper understanding of early urban dynamics.



1646. YOU HAVE TO START SOMEWHERE...ASSESSING AGRICULTURAL CARRYING CAPACITY AS A HEURISTIC FOR UNDERSTANDING PAST SOCIAL ECOLOGY

Contribution format: Oral  
Contribution authors: Julian Laabs (Leipzig University)

This paper presents a transparent and reproducible approach to modelling agricultural production in relation to environmental characteristics and available labour, with the aim of assessing the ecological and social carrying capacity of past landscapes. Carrying capacity, as a heuristic measure, serves as an entry point for exploring the complex dynamics of social ecology at site, micro-regional and broader scales, and provides a framework for understanding cultural adaptation and resilience in changing environments. The approach (EstimatingLandLabourLimitations) integrates well-established open access tools (e.g. LandUseQuantifieR, FuzzyLandscapes) and uses topographic derivatives to assess environmental suitability. These suitability measures are translated into a carrying capacity index, which is applied across multiple agricultural and territorial scenarios to account for the uncertainties inherent in reconstructing past socio-ecological systems. Using diachronic case studies ranging from Early Neolithic river valleys in Slovakia to micro-regions of Asia Minor during the Roman Imperial Period, this paper illustrates the ecological constraints and opportunities that shaped past societies. By demonstrating how a simple heuristic can be used to transcend simplicity and embrace complexity, this research contributes to broader discussions of social and economic resilience, adaptation, and societal transformation in response to environmental challenges.

2466. WORKING HARD: GEOARCHAEOLOGICAL PERSPECTIVES ON AGRICULTURAL PRACTICES IN ANCIENT EASTERN IBERIA

Contribution format: Oral  
Contribution authors: Xavier Agulló Máñez (University of Alicante) – Mario Gutiérrez Rodríguez (IUIAI, University of Jaén) – Ignasi Grau Mira (INAPH, University of Alicante)

employed in these areas, we conducted a multi-scalar geoarchaeological analysis incorporating soil micro-morphology, bioarchaeological techniques, and geochemical analyses. These methods provided critical data on soil management practices, including plowing, fallowing, manuring, irrigation, and other intensive land-use strategies. By comparing the results from both sites, we aim to highlight patterns of continuity and change in agricultural practices across the Iron Age and Roman periods. The findings reveal the adaptability of these rural communities to environmental challenges and their capacity to manage limited resources effectively. Furthermore, this comparative approach allows us to investigate the socio-economic implications of these agricultural practices, shedding light on the integration of peasant production systems into broader regional and imperial frameworks. Through this study, we propose a nuanced interpretation of ancient rural landscapes, emphasizing the interplay between environmental conditions, agricultural practices, and socioeconomic organisation. By focusing on key processes such as terracing, irrigation management, and organic enrichment of soils, we aim to contribute to a deeper understanding of the resilience and sustainability of ancient agrarian systems in the Mediterranean world.

1408. BUILDING A RURAL ROMAN LANDSCAPE: LAND DIVISION, ROAD NETWORKS, AND GEOMORPHOLOGY SOUTH OF BEDRIACUM

Contribution format: Oral  
Contribution authors: Guglielmo Strapazzon (Independent) – Enrico Croce (University of Milan - Department of Cultural Heritage and Environment)

Traditional studies of rural Roman landscape formation in Italy have primarily relied on cartographical and historical sources. These approaches often follow a rigid, top-down perspective, with a strong emphasis on written records and cartographic analysis to examine land division, agricultural patterns, and road networks. However, the recent application of remote sensing and geophysical methods in the rural area of Bedriacum (Province of Cremona, Italy) has provided deeper insights into the process of landscape formation during Roman times. This modern approach is more inductive, grounded in field data, rather than relying solely on historical texts and maps. The data, mostly derived from extensive satellite imagery analysis and magnetic surveys, have revealed the relationship between the Roman rural land grid, road axes, and the area’s geomorphology. The findings indicate that factors such as the local slope gradient, and the morphology of Holocene river terraces were key drivers in shaping the rural landscape during Roman times. These results challenge the traditional view in Italian historical topography, which often emphasizes a culture-driven approach to Roman land management.

1265. AGRICULTURE AND TRADE IN CISALPINE GAUL BETWEEN THE LATE IRON AGE AND LATE ANTIQUITY. THE AGROTOWN OF BEDRIACUM

Contribution format: Oral  
Contribution authors: Benedetta Di Presa – Enrico Croce – Emanuele Intagliata (University of Milan) – Guglielmo Strapazzon (Indipendent) – Lorenzo Zamboni (University of Milan)

Traditionally, the archaeology of Cisalpine Gaul has focused on the major urban centres and the artistic representation and artisanal consumption of the elite, and has largely underestimated the role of the countryside, with its smaller agricultural sites and their inhabitants. As part of an ongoing interdisciplinary project (Rures), this paper aims to explore the interaction between landscape, settlement and economic strategies in a specific transect of the Po Valley, namely the area east of the Roman colony of Cremona.M.The long history of occupation of this settlement, as evidenced by the archaeological evidence collected so far, provides an important vantage point to explore the extent of this interaction over the longue durée, between the end of the 2nd century BCE and the 6th century CE. At the crossroads of riverine and cobbled roads, including the Postumia, the agrotown of Bedriacum offers a unique palimpsest of urban, productive and social adaptation strategies, as revealed by a series of integrated analyses. New data is provided on housing and storage facilities, infrastructures, near-site evidence, as well as on resilient economic activities.

1393. LATE ANTIQUE AGRARIAN LANDSCAPES IN NORTHERN ITALY. THE CASE OF RIVANAZZANO TERME AND OLTREPÒ PAVESE

Contribution format: Oral  
Contribution authors: Manuela Battaglia – Elena Calandra – Yuri Godino – Stefano Maggi (Università degli Studi di Pavia)

During the Roman period, the population of the Po Plain was significantly influenced by the major consular roads, the Via Aemilia and the Via Postumia, along which the main settlements were located. The extant archaeological data demonstrate that the countryside around the colonies was also densely settled and fully exploited in relation with the centuriation system. However, as one moves further from the urban centre, the overall picture becomes less clear. In the context of an ongoing interdisciplinary project (Rures), the present work seeks to explore the dynamics of ancient settlement in a specific region of the Po Valley. The research focuses on the area south of the river, extending between the Roman colony of Iria/Voghera and the foothills of the Ligurian Apennines. This area is situated on the periphery of a more extensive settlement network, encompassing the countryside between Dertona and Iria, and features a centurial system dating back to the late Republican period. Investigations conducted by the University of Pavia in Rivanazzano Terme (province of Pavia) have revealed evidence of a settlement pattern of greater density and complexity than previously thought, with continuous occupation spanning several centuries. The excavated sites have demonstrated multi-phase frequentation, ranging from the late Republican period to Late Antiquity. This provides a rare opportunity for diachronic analysis of the area’s occupation. In this paper we focus on the Late Antique phases, a historical context currently under-researched in the literature of these territories. The aim is to reconstruct ancient landscapes and advance hypotheses on environmental transformations considering the historical events of the period, from the fall of the Roman Empire to the Greco-Gothic war.

544. PALYNOLOGY OF ROMAN RURAL SITES IN THE CISALPINE GAUL (N ITALY): CASE STUDIES FROM THE RURES PROJECT

Contribution format: Oral  
Contribution authors: Jessica Zappa – Eleonora Rattighieri – Eleonora Clò – Assunta Florenzano – Anna Maria Mercuri (Laboratorio di Palinologia e Paleobotanica, Università degli Studi di Modena e Reggio Emilia)

Palynological research can be crucial for reconstructing past environmental and ecological dynamics in archaeological contexts. By analysing pollen preserved in ancient sediments, it is possible to gather information about past plant cover and understand human-plant interactions. Moreover, pollen can be an index of agricultural and other land use practices, providing a comprehensive view of daily activities of ancient populations. The palaeoecological perspective is therefore especially useful in the RuRES project (Rural Resilience. Decentralised Landscapes and Ecological Strategies of Non-elite Groups in Cisalpine Gaul), coordinated by Lorenzo Zamboni, which aims to investigate ecological strategies and resilience practices adopted by rural communities during changing environmental and political conditions. Isola Felice in Rivanazzano Terme (Pavia) and Calvatone (Cremona) are the investigated sites in Northern Italy. They represent important evidence of the Roman period in the Po Plain. Both are known for their historical significance and the discovery of archaeological materials testifying to the evolution of cultural and social practices. In this contribution, some results of palynological analyses carried out at the two archaeological sites are reported to outline plant diversity and the main traits characterising the different



contexts. Pollen sampling was carried out selecting conservative sediments and collecting samples from different layers in the excavations. In Calvatone, 22 samples were taken from Sector 4 and a productive area, while at Isola Felice, 36 samples were taken from sections of sectors West and East. Pollen was extracted following a concentration treatment and analysed with reference material and atlases. In general, forest cover was low, mainly composed by mixed oakwood (e.g., deciduous *Quercus*, *Corylus avellana*, *Fraxinus excelsior* type) and wet environments were also evident (e.g., *Alnus* among trees, *Sparganium emersum* type and *Cyperaceae* among herbs). Furthermore, human activities have been identified by the anthropogenic pollen indicators (cereals and other synanthropic taxa) and characterised both sites.

128 THE PRODUCTION AND DIFFUSION OF OBSIDIAN ARTEFACTS: EXPLORING SOCIO-ECONOMIC AND SYMBOLIC BEHAVIOURS FROM A TECHNO-FUNCTIONAL PERSPECTIVE

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** Obsidian, Techno-Typology, Use-wear Analysis, Comparative Lithic Studies, Diffussion  
**Session organisers:** Zeynep Beyza Agirsoy (Ankara University, Graduate School of Social Sciences, Department of Archaeology-Prehistory) – Idaira Brito-Abrante (Tarha Research Group, Departamento de Ciencias Históricas, Universidad de Las Palmas de Gran Canaria) – Bogdana Milić – Fiona Pichon (National Spanish Research Council, Milá y Fontanals Institute (IMF-CSIC) – ASD research group)

SESSION ABSTRACT

The archaeological records of material culture are fundamental for understanding past societies, where lithic industries often play a key role. Obsidian has been frequently selected as a raw material for tool making, particularly in regions with volcanic rocks. Studies on obsidian have significantly expanded over years, ranging from the analysis of its geological provenance to its technological, typological and functional characterisation. These approaches allow us to trace the mobility of communities providing a deeper understanding of the economic, social and symbolic dynamics of the societies that relied on this specific lithic resource. This session aims to bring together researchers specialising in different methods and approaches to study lithics, with a focus on techno-typological and functional analyses of obsidian. Obsidian is particularly suitable for analyzing technological processes, typological variations, and use-wear patterns. We welcome contributions that illustrate the diversity of technological solutions used for its extraction, exploitation, circulation and diffusion of this material through case studies from various regions worldwide, aiming to highlight similarities and differences that enhance our understanding of its role in past societies. Key themes of the session will include.

- Comparative studies of core reduction techniques and technological strategies
- Typological analyses of tool assemblages
- Experimental archaeology for understanding the techniques of knapping and use
- Use-wear studies that shed light on tool function and activity areas
- Data sharing for standardisation of methodologies related to technology and function
- Procurement, diffusion and circulation of obsidia.

By welcoming contributions from different regions and periods, we encourage discussion and collaboration among specialists to advance our understanding of obsidian as a lively material in lithic studies. This session seeks to generate new perspectives and interdisciplinary approaches to broaden our knowledge in lithic studies and strengthen academic exchange.

CONTRIBUTION ABSTRACTS

1779. NEW INSIGHTS INTO REDUCTION PROCESSES OF OBSIDIAN BIFACIAL POINTS IN THE TERMINAL PLEISTOCENE OF NORTHERN JAPAN: MACROSCOPIC AND MICROSCOPIC ANALYSES

**Contribution format:** Oral  
**Contribution authors:** Jun Takakura (Sapporo International University)

The terminal Pleistocene lithic assemblages in northern Japan are mainly characterised by the bifacial points, including leaf-shaped and stemmed types. Until recently, many researchers have examined the spatial-temporal distributions of bifacial points and their implications for adaptation strategy of the terminal Pleistocene hunter-gatherers in northern Japan by focusing on techno-typological variability of leaf-shaped and stemmed bifacial points. However, there have been only a few studies on the reduction process of bifacial points in the terminal Pleistocene of northern Japan to evaluate technological and functional characteristics. Thus, no consensus has

been established on the emergence and development of bifacial point technology, particularly with regard to the transition of subsistence and hunting weapon technologies. In this paper, I attempt to examine obsidian stemmed bifacial point reduction strategies by considering macroscopic and microscopic traces reflect distinctive reduction trajectories. In addition, this paper analyses morphological and techno-functional patterns of tool damage and rejuvenation developed from a lithic artefact assemblage. The combined evidence provides new insights into the hypothesised interpretation of stemmed bifacial points as specialised projectile points manufactured by pressure knapping and used primarily for open-air hunting by the terminal Pleistocene foragers of northern Japan. These conclusions contribute to the growing picture of diversity and adaptive flexibility among stemmed point-making foragers in Northeast Asia.

524. USING OBSIDIAN SOURCING TO TRACE EARLY ISLAND EXCHANGE NETWORKS IN SOUTHERN WALLACEA

**Contribution format:** Oral  
**Contribution authors:** Shimona Kealy – Emily Nutman (The Australian National University) – Christian Reepmeyer (Deutsches Archäologisches Institut) – Sue O’Connor (The Australian National University)

Our species embarked on the world’s first great maritime journey from Sunda (greater Southeast Asia) to Sahul (greater Australia) at least 50,000 years ago. In the process they settled Wallacea, the archipelago of thousands of islands lying between these two continental landmasses. While this initial settlement has been the focus of many research efforts in the region, later developments in maritime capabilities and changing island community and settlement dynamics remain less understood. Recent discoveries of obsidian artefacts from a single geological source in archaeological sites on Timor, Alor, and Kisar, dating back to approximately 16,000 years ago, point to the emergence of the world’s earliest known multi-island maritime network. Here we present the results of combined geological and archaeological surveys, along with chemical sourcing analyses, to successfully identify the previously unknown source of this obsidian. This discovery provides a refined understanding of the procurement, diffusion, and circulation of obsidian across Southern Wallacea. We discuss how the improved insights into the timing, pattern, and extent of this exchange network highlight the advanced maritime capabilities and dynamic social interactions of communities during a pivotal yet often overlooked period in Wallacean prehistory.

1062. 6,000 YEARS OF MARITIME OBSIDIAN CIRCULATION IN NORTHWESTERN PATAGONIA. NEW TECHNOLOGICAL DATA FROM CHILOÉ AND RELONCAVÍ, SOUTHERN CHILE (42°S)

**Contribution format:** Oral  
**Contribution authors:** Simon Sierralta (Independent) – Constanza Cortés (Escuela de Arqueología, Universidad Austral de Chile)

Obsidian from the Chaitén volcano circulated widely across the Northwestern Patagonian Archipelagos during the Middle and Late Holocene. Its record in the first coastal hunter-gatherer sites has been interpreted as evidence of the early establishment of regional-scale mobility and/or interaction networks by 6,000 BP. The source continued to be exploited into later times, perhaps until Spanish settlement in the 16th century CE. However, technological modes and circulation mechanisms are poorly understood, especially in the northern margin of the archipelagos. This work presents technomorphological analyses of the lithic assemblages of Chepu 005 and Piedra Azul, two multicomponent sites from northern Chiloé Island and the Reloncaví Sound, reoccupied by hunter-gatherers since ca. 6,000 BP. We observe a general trend towards decreasing obsidian circulation during the Late Holocene. This is accompanied by variations in technological strategies that could be linked to changes in mobility, regional demographic density, and possibly intergroup interaction dynamics. However, obsidian continued to be exploited and was the only lithic raw material to circulate at a regional scale, suggesting it played a significant role beyond functional considerations. We also observe a turn from the “wasteful” use of obsidian for the production of formal and informal tools in the earliest occupations towards a more curated and normative approach after 3500 BP. This change can be framed in broader transformations of the lithic mode of production in the archipelagos during the Late Holocene. Finally, an inter-site comparison shows differences in provisioning ratios and technological management of obsidian reservoirs not necessarily linked to distance, suggesting uneven access to this rock in different areas of the archipelago. This can be further discussed in relation to local lithic landscapes, which varied significantly between Chiloé and Reloncaví. Some of these trends continue throughout the studied period, suggesting persisting socio-geographic dynamics across several millenia.



556. OBSIDIAN IN PRE-HISPANIC NORTHEAST HONDURAS: LONG-DISTANCE EXCHANGE NETWORKS AND SOCIO-ECONOMIC COMPLEXITY

**Contribution format:** Oral  
**Contribution authors:** Mike Lyons (The Commission for Archaeology of Non-European Cultures, German Archaeological Institute | University of Bonn, Department for the Anthropology of the Americas) – Jeannine Langmann (University of Bonn, Department for the Anthropology of the Americas | The Commission for Archaeology of Non-European Cultures, German Archaeological Institute)

Obsidian import into northeast Honduras during the pre-Hispanic period changed over time and space. Our investigations have uncovered a dynamic past in which the import of obsidian can be traced back to the Late Preclassic period (ca. 300 BC–AD 300), ceasing almost altogether during the Classic (ca. AD 300–1000), and increasing significantly during the Postclassic (ca. AD 1000–1525). X-ray fluorescence analysis of obsidian artifacts from various sites in the region reveals imports from both local Honduran sources and distant regions in present-day Guatemala and Mexico, up to 1500 km away. The large dataset allows us to paint a picture in which obsidian was not distributed equally among settlements. Instead, high-quality material was funneled to larger settlements, while lower-quality material—exhibiting different technological processing, especially in platform treatment and remaining cortex—was more common in smaller, coastal communities. These observations suggest that exchange networks and the management of obsidian resources were controlled by various actors throughout time, highlighting a major aspect of the region’s socio-economic complexity.

2459. IZTETE OBSIDIAN: MEXICO’S “BLACK GOLD”

**Contribution format:** Oral  
**Contribution authors:** Ericka Blanco Morales (UNAM)

Mexico is a country with great biodiversity because of its diverse topography. In the Magdalena Basin (Jalisco), for instance, the mountain ranges, lakes and rivers within the Neovolcanic Transversal Axis, are part of a large network of ecosystems that include many volcanoes. These volcanoes are responsible for hundreds of deposits of obsidian, a volcanic glass. At least 56 sources of obsidian have been documented here, which were exploited by humans since at least 10,000 years ago. Because of obsidian’s characteristics, it was an ideal raw material that fostered an economy linked to the manufacture, distribution, and exchange of tools used for cutting, scraping and abrading, among other uses. After AD 850 obsidian artifacts became highly important among Mesoamerican trade networks, including Western Mexico, particularly the inhabitants of Atitlán Island. Tools such as prismatic blades played a key role within the Aztatlán network and may have become standard items of exchange.

474. PPNA LITHIC TECHNOLOGY IN THE UPPER TIGRIS BASIN: OBSIDIAN USE AND HUMAN-ENVIRONMENT INTERACTION AT GRE FILLA (DIYARBAKIR/TURKEY)

**Contribution format:** Oral  
**Contribution authors:** Zeynep Beyza Agirsoy (Ankara University, Graduate School of Social Sciences, Department of Archaeology-Prehistory)

Gre Filla is a Pre-Pottery Neolithic (PPN) settlement in Upper Mesopotamia, located in southeastern Turkey within the borders of Diyarbakır Province. Excavations at this site have yielded significant data on PPNA and PPNB practices in the region. Approximately 10,000 years ago, sedentary communities knapped obsidian for hunting and daily activities. Techno-typological analyses at Gre Filla reveal its inhabitants’ obsidian knapping strategies. At Gre Filla, obsidian constitutes 56% of the PPNA chipped stone industry, with the raw material is believed to have been sourced from obsidian deposits located approximately 70 to 100 km from the site. These obsidian nodules, ranging in size from 50 to 80 mm, were knapped within the settlement using direct percussion until they were exhausted. The knapping strategy was primarily focused on blade production; as core sizes decreased, the process transitioned towards the production of bladelets. Technological analyses indicate that all knapping stages occurred on-site, with core trimming elements representing different phases of reduction identified within the industry. The persistence of knapping techniques traditionally associated with hunter-gatherer lifeways was observed at Gre Filla, even as the community transitioned to a sedentary lifestyle. Alongside this technological continuity, the similarities and differences in technical innovations of knapping at Gre Filla during PPNA will be assessed in comparison to other contemporary sites in the Upper Tigris Basin. The study examines obsidian knapping strategies from a technical perspective. This analysis will facilitate a more profound comprehension of subsistence practices in the context of the interactions between humans and their environment among Neolithic communities in the Near East. The obsidian knapping technology at Gre Filla is of particular significance in enhancing our understanding of lithic production not just as a technical process, but also as a pivotal element in raw material management, hunting strategies, and the social organisation of PPN communities.

1303. CHALLENGING THE IDEA OF NOMADIC PASTORALISTS’ CRUCIAL ROLE IN OBSIDIAN EXCHANGE DURING PRE-POTTERY NEOLITHIC B

**Contribution format:** Oral  
**Contribution authors:** Aleksandra Furczyk (University of Wroclaw)

Obsidian exchange during Pre-Pottery Neolithic B has drawn archaeologist’s interest since the middle of the twentieth century. In this period we can observe the rise of long distance exchange routes in the Fertile Crescent, bearing not only raw materials such as obsidian, but also ideas and cultural changes. These routes stretched from obsidian sources in Anatolian Peninsula to Euphrates and Tigris river basins, as well as Levant, spanning as much as 800km. Despite more than sixty years of reseach in this topic the question how such long distance exchange could have operated still remains. Models such as Renfrew’s „down the line” and various ones relying on agent based modelling were developed to explain the phenomenon, but haven’t been able to fully recreate the dispersal of obsidian, as it is seen in archaeological material. Possible solution might lay in the central role of pastoral transhumance in the long distance movement of obsidian, as proposed by some scholars. Herding of animals began in the early PPNB, but to what degree the pastoralist were mobile in this initial stage of animal husbandry? This contribution aims to explore the current state of knowledge, and its implications for long held theory of nomadic pastoralist role in obsidian diffusion. To do so, . will focus on well documented sites from regions of El Kowm depression and Southern Jordan, where nomadic pastoralist were supposed to emerge. Sedentary sites will be evaulated in terms of occurence of obsidian and evidence of long distance transhumance, attested by bioarchaeological and zooarchaeological data. Finally the sites connected with seasonal grazing will be examined: their interpretation and findings of obsidian artifacts.

1053. DEFINING SOUTHERN AEGEAN EARLY BRONZE AGE COMMUNITIES OF PRACTICE THROUGH ‘THICK DESCRIPTION’ OBSIDIAN CHARACTERIZATION STUDIES

**Contribution format:** Oral  
**Contribution authors:** Tristan Carter (McMaster University)

While the Aegean was a focus of the earliest Old World obsidian sourcing studies undertaken in the 1960’s, it has subsequently seen far fewer analyses compared to the neighbouring regions of Anatolia, and the Western Mediterranean. In part this may be due to the received wisdom, that aside from a few pieces of Carpathian or Cappadocian ‘exotica’, that most obsidian from the prehistoric Aegean is Melian. This may well be the case, however, this is to ignore the fact that there are two spatially, and geo-chemically distinct sources on Melos (Sta Nychia, and Dhemenegaki), and that there is no reason to assume that they had common histories of use. A new series of characterization studies suggests that there are indeed major differences in these sources’ exploitation, both chronologically and regionally. Focusing on the Early Bronze Age, through reference to studies from the Cyclades (Kastri, Keros), Crete (Malia, Mochlos) and western Anatolia (Çine-Tepecik, Liman Tepe) indicates a significant bias towards the consumption of Sta Nychia products by certain communities. Focusing on raw materials’ alone only produces broad stroke interpretations, that mask regional traditions. Our approach has long been to take a ‘thick description’ approach that melds elemental and techno-typological data to produce a richer artefact characterization, enabling the reconstruction of regional and or site-specific ‘communities of practice’, i.e. shared ways of doing things that emerge from intense interaction between social groups.

64. BRONZE AGE OBISIDIAN TRADE NETWORKS IN WESTERN ANATOLIA: BETWEEN SEA AND RIVER VALLEYS

**Contribution format:** Oral  
**Contribution authors:** Neyir Kolankaya-Bostanci (Hacettepe University)

The study of prehistoric trade networks is a fundamental topic of archaeological research, as the successful reconstruction of trade may illuminate not only economic aspects of ancient societies, but also the social characteristics of the settlements or cultures in which it operated. In this respect for the prehistoric societies obsidian provides an opportunity to reconstruct of its movement and to use these data to infer the changing scale of social life. Using the distances of obsidian movement a network model is developed and used in the reconstruction of the western Anatolia prehistoric social landscape. In the Early Bronze Age within the progressive relations with the Cyclades islands, Melian obsidian became an important product in the trade network. However, it is noteworthy that there had been a decline in the use of obsidian in western Anatolia as in the entire Aegean world, since the end of the third millennium BC. The most important reasons behind this decline include the social, political and economic variables of the period. On the other hand, when compared to other contemporary settlements, it is seen that there was no decrease in the use of obsidian in some settlements in both Middle and Late Bronze Ages. This study investigates the nature and extent of trade networks in western Anatolia during Early, Middle and Late Bronze Age using obsidian artefacts as a focal material. The mapping of obsidian circulation through time and space is a typical means of displaying and interrogating social behavior and processes, in particular



trade, as most clearly outlined in supply/contact zone models.

1369. FOLLOWING THE OBSIDIAN TRACES IN THE MEDITERRANEAN FOR HIGHLIGHTING TRADING ROUTES AND SETTLEMENTS’ SPATIAL CORRELATION IN THE BRONZE AGE

**Contribution format:** Oral  
**Contribution authors:** Athina Chroni (National Technical University of Athens | Hellenic Ministry of Education, Religious Affairs and Sports) – Vassilia Karathanassi (National Technical University of Athens)

Throughout the Bronze Age shipping has been highly developed to handle trade and product exchanges. Seafaring was the only way to reach remote areas and a vital means of communication between coastal settlements in the ancient Greek world. Consequently, maritime mobility, becomes the accelerator for social evolution, as well as for setting up webs of sea routes and enabling cultural interaction between different communities. The obsidian, an exotic, valuable material, found only in four islands of the Cyclades, constitutes the catalyst that intensifies maritime travel. During the Late and the Final Neolithic, when the systematic habitation of the Cyclades became more intensive, the obsidian trading became part of the increasingly complex trade networks of the Aegean. The obsidian then reached settlements beyond the Cyclades in the form of roughly processed cores. Given that the circum-navigation of the Peloponnese from its southern shores was the main sea route for communication between East-West and North-South in all past times, the western coastline of Messenia, Peloponnese, Greece becomes the gate for obsidian import and further transport to inland, thus directly affecting the socio-economic framework of the Bronze Age and the related political web for the same time periods. Under the perspective of highlighting the spatial web as developed among various settlements of the Bronze Age, GIS has been chosen as the optimum digital tool, functioning, also, as a database for various types of data.

297. WHY ARE THERE OBSIDIANS IN THIS PLACE? USE-WEAR ANALYSIS FROM THE GRANARY OF ‘EL CENOBIO DE VALERÓN’ (GRAN CANARIA, SPAIN)

**Contribution format:** Oral  
**Contribution authors:** Idaira Brito-Abrante – Amelia Rodríguez-Rodríguez (Tarha Research Group, Universidad de Las Palmas de Gran Canaria)

The Amazigh period on the island of Gran Canaria (2nd-15th centuries AD) was characterised by the great importance of agriculture as a fundamental strategy for the subsistence of the native population. Archaeological studies reveal that demographic stability depended on practices that, over time, led to an intensification of production. In this sense, a specialisation has been observed in those crops that were better adapted, such as barley, and research is being carried out to determine whether the use of irrigation and fertilisation of the fields increased. In parallel, the structures dedicated to the storage of surpluses became increasingly important. These grew in number and became more complex, from isolated silos to large sets of hollows organised around chambers and corridors, sometimes with several levels. These structures are known as collective granaries, often dug into inaccessible cliffs. Carpological and archaeoentomological analyses have provided insights into the characteristics of the silage practices once the grains and fruits reached the granaries. The good preservation of this evidence, along with other artifacts made of ceramics, leather and plant fibres, and construction elements made of wood indicates how these processes were carried out. However, stone tools have also been found in the granaries whose function in storage contexts remains unclear. This article presents the results of the traceological analysis of a set of obsidian artefacts recovered from the most significant granary in Gran Canaria: El Cenobio de Valerón. The data obtained and its correlation with other studies on the rest of the evidence shows the variability of activities that suggest a more complex role for these extraordinary structures.

2095. OBSIDIAN EXPLOITATION AND VOLCANIC ACTIVITY DURING THE FIRST HUMAN SETTLEMENT OF TENERIFE (CANARY ISLANDS, SPAIN)

**Contribution format:** Oral  
**Contribution authors:** Cristo Hernández Gómez (Área de Prehistoria, Departamento de Geografía e Historia. Universidad de La Laguna | Archaeological Micromorphology and Biomarkers Laboratory, Universidad de La Laguna) – Alvaro Castilla-Beltrán (Área de Geografía Física, Departamento de Geografía e Historia. Universidad de La Laguna) – Efraín Marrero Salas (Prored Soc. Coop. ) – Javier Dóniz Páez (Área de Geografía Humana, Departamento de Geografía e Historia. Universidad de La Laguna | Instituto Volcanológico de Canarias (Involcan)) – Francesc C. Conesa (Social Sciences, Heritage and Food research group (IPNA-CIC) | Archaeological Micromorphology and Biomarkers Laboratory, Universidad de La Laguna) – Emilio González Reimers (Universidad de La

Laguna) – Matilde Arnay De La Rosa (Área de Prehistoria, Departamento de Geografía e Historia. Universidad de La Laguna)

Research conducted to date on the exploitation of obsidian by the Guanche people, the first inhabitants of Tenerife (Canary Islands, Spain), has revealed a centralized model of supply and distribution of this raw material across the island. The main procurement sources are located in a high-altitude region at its center, where hundreds of obsidian workshops are concentrated in three exceptional sites: Tabonal Negro, in Montaña Blanca lava dome; Los Tabonales, on the slopes of Pico Viejo stratovolcano; and, most notably, Tabonal de Los Guanches, on the northern flank of Teide complex lava flows. This area is closely linked to eruptive processes contemporary with the indigenous settlement, which shaped the current morphology of the stratovolcano. This study explores the impact of volcanic phenomena on aboriginal productive activities, highlighting their influence on obsidian management. It examines the spatial distribution of workshops on Teide’s northern slope (in different lava flows units) and their connection to eruptive episodes or centres, while also characterizing the associated lava materials from a geochemical and volcano-stratigraphic perspective. The results reveal how the Guanches had to interact with volcanic phenomena in key areas for their techno-economic model, underscoring the intricate relationship between natural processes and indigenous productive strategies.

2096. CHALCOLITHIC PERIOD OBSIDIAN PROCUREMENT AND CIRCULATION IN INNER WESTERN ANATOLIA

**Contribution format:** Poster  
**Contribution authors:** Ali Umut Türkcan (Anadolu Universitesi, Dept. Archaeology) – Utku Umut Kocatürk (Çatalhöyük)

At the beginning of the 6th millennium BC, in the Early Chalcolithic Period, the Porsuk Culture, emerged in inner western Anatolia covering Eskişehir, Kütahya regions. The first definition of this culture, which began to take shape towards the end of the Early Chalcolithic Period and continued until the beginning of the Late Chalcolithic, was made by Turan Efe excavations at the Orman Fidanlığı Mound. Along with the Orman Fidanlığı Mound, whose materials have been studied in detail and published, the other well-studied and detailed reported settlement in the region is Kanlıtaş Mound. As a result of the analyses conducted on the chipped stone tools from the Kanlıtaş Mound, the diversity in raw materials attracted attention. In these two well-researched and well-preserved on roc. settlements, which are similar to each other in terms of settlement type of Porsuk Culture, Kanlıtaş Mound is distinguished from Orman Fidanlığı Mound in terms of access to raw materials. This abundance is also reflected in the variety of tools and a rich variety of raw materials. On the other hand, rare and special examples of obsidian tools and one core from 3 settlement. belonging to the Porsuk Culture are noteworthy. Although Orman Fidanlığı settlement also had few examples. examples showed a continuation through levels from Early to Late Chalcolithic. The exquisite tool types and one defined (analysed) Cappadocian with limited number. found especially on these excavated sites of Porsuk Culture seemed to have been prestige items rather being functional tools. It is an discussion of obsidian procurement, resources (Galatian, Kalabak and Morali) in NW Anatolia after Late Neolithic period.

129 URBAN ADAPTATIONS TO CLIMATE CHANGE

**Session theme:** 7. Climate Change in the Past and Present  
**Session format:** Regular session  
**Session keywords:** Climate change, Urbanism, Sustainability , Resilience, Vulnerability  
**Session organisers:** Manuel Fernández-Götz (University of Oxford) – Lorenzo Zamboni (University of Milan)  
**Session discussant:** Adam Green (University of York)

SESSION ABSTRACT

Archaeologists are increasingly engaging with the study of past climate change and its impact on societies at different scales. This is a crucial topic: thanks to its deep history perspective, archaeology is in a privileged position to contribute to address one of the most important challenges of our present world. In this session, we want to focus specifically on the influence that climate shifts had on urban life, i.e., how urban communities across the planet were impacted by, and adapted to, changes in temperatures and weather patterns. The impact of climate oscillations can be studied at the level of individual cities and towns, but also in relation to entire urban networks at a regional and macro-regional scale. Can we observe correlations between climate trends and phases of settlement nucleation or dispersal? How did different societies respond to similar environmental challenges? Can we identify strategies of resilience that prove helpful to current debates on urban sustainability? Conversely, were certain urban systems particularly vulnerable to climate changes in the past, and are there any lessons that we might



learn for the present and future? These and other questions can be explored within the session, which welcomes papers from all time periods that focus either on specific case studies or on wider comparative perspectives.

CONTRIBUTION ABSTRACTS

1321. CLIMATE CHANGE AND URBAN DYNAMICS IN 1ST MILLENNIUM BC TEMPERATE EUROPE

**Contribution format:** Oral  
**Contribution authors:** Manuel Fernández-Götz (University of Oxford)

In light of the present-day climate emergency that threatens life on our planet, archaeologists are increasingly looking at the impact that climatic changes had in developments experienced in the past. This includes the persistence and sustainability of urban sites and networks, including instances of both decline and resilience. In this paper, the influence of climate change on processes of urbanisation and deurbanisation will be explored on the basis of the evidence available for 1st millennium BC temperate Europe. I will discuss previous proposals that have linked processes of aggregation and dispersal with periods of warmer and colder climate respectively. In addition, the paper will highlight the need for multi-scalar approaches that take into account the variable effects that climatic changes could have depending on factors such as latitude and altitude, as well as the diverse strategies adopted by communities when confronted with similar challenges. Finally, I will highlight the need for more studies that take a multi-variable approach.

2351. ENVIRONMENTAL AND/OR SOCIAL CHANGES AND THEIR INFLUENCES ON LATE PREHISTORIC URBAN SETTLEMENTS IN THE SOUTHEASTERN ALPINE REGION

**Contribution format:** Oral  
**Contribution authors:** Matija Crešnar (University of Ljubljana) – Petra Vojaković (University of Ljubljana | Arhej d.o.o.) – Luka Gruškovnjak – Agni Prijatelj – Manca Vinazza (University of Ljubljana) – Branko Mušič (University of Ljubljana | Gearh d.o.o.) – Helena Grčman (University of Ljubljana)

In recent years, a number of extensive investigations have been carried out on settlements with a distinct urban character from the last millennium BC. Using modern excavation methods and interdisciplinary approaches, the findings have also opened up new ways of questioning the role of environmental and/or cultural changes in their existence, location, internal setting, duration, etc. Why did communities persist in inhabiting certain places with seemingly unfavourable conditions or resettling them again and again? Was it just the bliss of ignorance or were there other factors that drove them to the same places? How do other studies, which did not follow the same methodological standards, complement the picture when we zoom out to the southeastern Alpine region and also consult the paleoenvironmental data? In 2024, we began the preparatory phase of the MATRES project (MATerial RESilience in times of environmental and social change), funded by the University of Ljubljana. This project is helping us to intensively investigate these and several other burning questions associated with the archaeology of climate change and what our modern society can learn from our predecessors.

1293. WAVES OF CITIES. THE SUSTAINABILITY OF EARLY URBANISM IN SOUTH-CENTRAL EUROPE

**Contribution format:** Oral  
**Contribution authors:** Lorenzo Zamboni (University of Milan)

The archaeology of early urbanism has evolved significantly in recent years from a socio-evolutionary perspective to a multi-layered and interdisciplinary field of study. For Europe in the 1st millennium BCE, this revealed an unexpected richness and antiquity of urban experience, with several independent waves of nucleation and dispersal of people in distinct but interconnected regions. The aim of this paper is to explore questions of sustainability and resilience of cities in the southern Alpine regions before and during the Roman conquest, adopting a multiscalar and cross-cultural point of view. In addressing this objective, the paper will consider how these cities adapted to climatic and other environmental changes. Despite the scarcity of environmental research projects and the relative dearth of quantitative data in the study area, the time is opportune for the establishment of an agenda and the posing of questions regarding, for example, the differential reactions of compact cities and low-density agglomerations during periods of climate shift. There are documented cases of urban settlements that have been established in geographical regions exhibiting analogous environmental characteristics, demonstrating remarkable resilience over extended periods. Conversely, other sites have been observed to be more ‘fragile’, vulnerable and transient. A comprehensive understanding of this nuanced scenario necessitates a multifaceted analysis, encompassing levels of energized crowding, wealth imbalance, socio-political structures, and economic strategies. It is crucial to incorporate environmental and climate adaptation factors into the analytical framework to achieve a holistic interpretation of the dynamics underpinning urban resilience and sustainability.

1271. WHEN THE WATERS RISE: RESILIENCE STRATEGIES IN THE FACE OF CATASTROPHIC FLOODS IN PHOENICIAN IBERIA AND TARTESSOS (7TH-6TH CENTURIES BC)

**Contribution format:** Oral  
**Contribution authors:** Manuel Álvarez-Martí-Aguilar (University of Malaga)

In my paper, I will consider cases of adaptive and resilient responses by Iron Age I southern Iberian coastal communities to extreme environmental events, particularly fluvial and marine flooding. I will focus on two unique cases. The first case is that of the responses of the Phoenician community of Cerro del Villar, at the mouth of the Guadalhorce River in Malaga, after the fluvial flood that devastated the settlement at the beginning of the 7th century BC. In the second case, I will try to show how similar strategies were implemented in the port area of the Tartessian emporium of Huelva, after the occurrence of a catastrophic flood at the beginning of the 6th century BC. I will try to show how, in both cases, the affected communities, characterized by the coexistence of local communities, Phoenicians and, in the case of Huelva, also Greeks, implemented resilience and adaptation measures after these environmental disasters. These measures include the implementation of constructive responses aimed at preventing the risk of flooding. These dynamics seem to be deployed in the context of a phase of strengthening international trade networks and may be an expression of a ‘culture of resilience’ within the framework of the orientalizing koine.

2186. THE IMPACT OF NATURAL DISASTERS ON URBAN DISINTEGRATION IN THE LATE ROMAN PERIOD: A STUDY OF THE SOUTHERN IBERIAN PENINSULA

**Contribution format:** Oral  
**Contribution authors:** Juan Manuel Martín Casado (Universidad de Málaga)

This paper analyses the impact of extreme natural events and their interaction with human communities in the south of the Iberian Peninsula during the Late Roman period (3rd-5th centuries AD). This framework offers a considerable amount of evidence. Of particular interest are the seismic effects recorded in cities such as Corduba, Munigua or Baelo Claudia , as well as the evidence of a destructive horizon due to one or more extreme marine wave events found in various coastal settlements, such as the cities of Baelo Claudi. and Hispalis , and various coastal factories, such as El Terrón (Lepe), El Eucaliptal (Punta Umbría), the industrial area of Onoba and La Orden (Huelva) and Cerro del Trigo (Almonte) . The Spanish historiographical scenario is experiencing a renewal in explanatory models, which includes the recovery of the idea of “crisis” as a valid conceptual category to describe the process of disarticulation of the Roman urban system since the end of the 2nd century AD. However, there are no studies that collectively analyse the possible impact of these phenomena on urban disarticulation. We propose, as a hypothesis, that the impact of extreme natural phenomena can be understood using the concept of multiplier effect, as defined by C. Renfrew . This type of phenomena, characterised by a high intensity of impact in the short term, would be able to amplify its impact on an already weakened system, thus generating a synergy or negative feedback with the rest of the pre-existing political, social and economic factors, accelerating the transformation of urban structures.

130 ISLANDS AND SUBMERGED LANDSCAPES OF THE PALAEOLITHIC: THE COASTAL AND CONTINENTAL AREAS OF THE MEDITERRANEAN IN INTERACTION

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** palaeolithic, Mediterranean, coastline, islands, landscape and seascape  
**Session organisers:** Danica Mihailovic (Institute of Archaeology in Belgrade) – Tristan Carter (McMaster University, Department of Anthropology, Hamilton, ON) – Elli Karkazi (University of Crete, Department of History and Archaeology)

SESSION ABSTRACT

The islands and seascapes of the Pleistocene Mediterranean shaped the character and practices of the Palaeolithic world. This session explores how these environments contributed to early human adaptation, resource exploitation, migration, and inter-regional connectivity across the Mediterranean. As sea levels fluctuated over millennia, dynamic coastlines and now-submerged landscapes formed pathways that early humans likely used for movement, trade, and cultural exchange. Presenters will examine evidence from archaeological sites throughout the Mediterranean islands and coastal zones, investigating how these areas connected or separated human populations and influenced technological and cultural development. Key topics will include but are not limited to:

1. Palaeolithic Occupation of Islands and Coastal Regions: How early humans accessed and utilized these land- and seascapes, and the influence of fluctuating shorelines on habitation, mobility and subsistence.



2.

Palaeolithic Mobility Across Evolving Seascapes: Considering the role of fluctuating coastlines in direct ing movement and interaction between insular and continental areas.
3.

Inter-regional Exchange and Isolation: Examination of lithic technologies and material culture that suggest cultural connections across islands and mainland territories or instances of prolonged isolation.
4.

Methodological Advances in Landscape Reconstruction: Applications of underwater archaeology, GIS-based models, and paleogeographic studies that help reconstruct submerged landscapes and better understand Palaeolithic Mediterranean connectivity.

This session aims to broaden our understanding of the Mediterranean’s coastal and island zones during the Palaeolithic, contributing to a larger picture of human dispersal, adaptation, and interregional ties. Through interdisciplinary research, we seek to answer pressing questions about the role of Mediterranean seascapes as both barriers and conduits, offering fresh perspectives on early human history across this dynamic region.

CONTRIBUTION ABSTRACTS

265. LOWER AND MIDDLE PALAEOLITHIC DYNAMICS IN THE EDREMIT GULF: ACHEULEAN LEGACY AND HOMININ MOBILITY

**Contribution format:** Oral  
**Contribution authors:** Göknur Karahan (Hacettepe University Faculty of Letters Department of Archaeology-Prehistory 06800- Beytepe/ANKARA)

The Edremit Gulf, a critical crossroads for hominin movements in the northeastern Aegean, played a transformative role during the Pleistocene. As sea levels fluctuated, the region alternated between extensive landmasses and smaller bays, creating dynamic landscapes that facilitated hominin dispersals between Anatolia and Europe. This study investigates the Gulf’s importance as a corridor for east-west and north-south Palaeolithic movements, focusing on its ecological richness and natural pathways. Between 2021 and 2023, systematic surface surveys identified 29 Palaeolithic findspots in the region. Lower Palaeolithic findspots were predominantly linked to riverine and marine terraces, with occasional associations to geothermal resources. Acheulean lithic assemblages included large cutting tools, such as handaxes, cleavers, and trihedral picks, alongside pebble core technology and flakes produced by unprepared and prepared cores. Middle Palaeolithic evidence was concentrated in high-altitude plateaus and plains, characterized by Mousterian assemblages featuring diverse retouched tools and Levallois and discoid flaking methods. These findings offer new insights into hominin dispersal routes in the northeastern Aegean and enhance our understanding of Acheulean and Mousterian technological traditions in Anatolia. The Edremit Gulf emerges as a pivotal region for studying Pleistocene hominin adaptations, technological innovations, and mobility patterns.

1778. MIDDLE PALAEOLITHIC MOBILITY AND ADAPTATION AT STELIDA, NAXOS

**Contribution format:** Oral  
**Contribution authors:** Danica Mihailovic (Institute of Archaeology, Belgrade) – Tristan Carter (McMaster University, Anthropology department) – Daniel Contreras (University of Florida, Anthropology department) – Justin Holcomb (University of Kansas) – Christelle Lahaye (Université Bordeaux-Montaigne)

The Middle Palaeolithic site of Stelida on Naxos offers significant insights into early human adaptation and movement across the shifting seascapes of the Aegean. As a prominent chert source, Stelida drew repeated hominin activity over millennia. Although erosion and colluviation have impacted stratigraphy, excavations have identified multiple artifact-bearing units dating to at least 200,000 years ago. While the timing of human access to the site in relation to Pleistocene sea-level changes remains undetermined, fluctuating environmental conditions likely influenced patterns of site use and exploitation. The lithic assemblage features both Levallois and bipolar technologies, reflecting a range of activities. Bipolar reduction, often linked to contexts requiring expedient knapping strategies, appears alongside more formal Levallois methods. This coexistence suggests a flexible technological response shaped by cultural needs, task-specific requirements, and resource conditions. Bipolar technology, documented across diverse Palaeolithic contexts globally, is noted for its adaptability in both raw material exploitation and rapid tool production, particularly where raw material transport may have been limited by landscape features or mobility constraints. At Stelida, these strategies likely responded to a combination of abundant raw material availability and environmental variability, resulting in different modes of lithic production. Geoarchaeological evidence indicates that changes in sea levels would have periodically altered the site’s accessibility and connection to nearby regions, potentially shaping patterns of seasonal or episodic use. However, sedimentological studies have underscored that most artifact-bearing deposits at Stelida are secondary, complicating efforts to directly link lithic activity with specific environmental phases. Despite these challenges, the diversity of assemblages suggests that the site functioned not only as a resource extraction area but also as a central site supporting adaptive approaches. These findings contribute to ongoing research on Middle Palaeolithic mobility and adaptation

across the Mediterranean, deepening our understanding of how early humans negotiated dynamic landscapes and resource opportunities.

1509. THE EXCAVATION AT MEGALOS PERISTERES CAVE (CRETE). A PRELIMINARY REPORT

**Contribution format:** Oral  
**Contribution authors:** Thomas Strasser (Providence College) – Andread Darlas (Greek Ministry of Culture, Paleoanthropology and Speleology) – Miriam Clinton (Rhodes College)

The excavation at Megalos Peristeres Cave has as its primary goal to find evidence of hominin occupation associated with extinct Pleistocene fauna on Crete. There are three reasons that the location of this cave is propitious to answering the question. The first is that the coastal area between Rethymnon and the Apokoronas peninsula is the largest fossil bed in the Mediterranean, and has primarily Pleistocene fauna, which overlap temporally with hominins. The second is that such an association was reportedly discovered in a nearby excavation in the 1960s and early 1970s but was dismissed. Third, Paleolithic tools were found directly south of this coast in the Plakias region (ca. 30 kilometers south). Thus, it is possible that the areas of faunal and hominin occupation overlapped in the region of Megalos Peristeres Cave. Based on preliminary analyses, the excavation was successful in the 2024 and 2025 seasons. Below a sparse distribution of pottery (primarily Final Neolithic) were found skeletal remains of the Pleistocene dwarf Cretan deer (*Candiacervus ropalophorus*) and extinct elephant (*Palaeoloxodon creutzburgi*). Though sometimes mixed with later Holocene fauna, the bones indicate the presence of Pleistocene fossil remains. In addition, Upper Palaeolithic stone tools were found, some in close proximity to extinct elephant. These consist of scrapers, a shoulder point, and cores. The data presented here are provisional due to the early stages of the project and need for subsequent analyses. Nevertheless, they indicate the presence of both hominins and extinct fauna, suggesting that the cave is a promising location to pursue questions of human impact on Ice Age animals on Mediterranean islands.

2029. UPPER PALAEOLITHIC COASTAL CAVE USE IN THE MALEAS PENINSULA: NEW EVIDENCE FROM SOUTHEASTERN PELOPONNESE, GREECE

**Contribution format:** Oral  
**Contribution authors:** Elli Karkazi – Ioanna Efstathiou (Hellenic Ministry of Culture – Ephorate of Palaeoanthropology - Speleology) – Yannis Bassiakos (Laboratory of Archaeometry, NCSR “Demokritos”)

The southern Peloponnese comprises three peninsulas extending into the Mediterranean, likely providing diverse resources that supported human settlement and adaptation. Until now, Palaeolithic evidence has only been identified along the western and eastern coasts of the Mani Peninsula, the central of the three. This presentation introduces new evidence of Late Pleistocene habitation in the steep eastern coastal areas of the Maleas Peninsula, the easternmost of the peninsulas. Anavalos Cave, a spacious eastward-facing karstic cave at present sea level, contains lithified archaeological layers within a total sediment fill that originally reached approximately seven meters. Due to post-depositional lithification and diagenetic processes, stratigraphic sampling was conducted by extracting ten lithified blocks using an electric rotary saw. Laboratory excavation of one of them followed standard archaeological methods, while a limited in situ excavation was performed in deeper sections of the cave, where small deposits of non-lithified sediment remained. Dating analyses, including Optically Stimulated Luminescence (OSL) on four lithified sediment samples and one radiocarbon dating of charcoal, yielded ages ranging from 32.2±4.5 ka to 22.56±6.1 ka. Preliminary analysis of the lithic artefacts suggests an Upper Palaeolithic industry primarily knapped from local quartzite. These findings from the Maleas Peninsula help bridge a spatial gap in Greece’s Upper Palaeolithic archaeological record, contributing to a more comprehensive understanding of human activity in the southern Peloponnese.

913. CH-CH-CH-CH-CHANGES... A VIEW FROM VLAKNO CAVE (CROATIA)

**Contribution format:** Oral  
**Contribution authors:** Dario Vujevic – Mario Bodruzic (University of Zadar, Department of Archaeology) – Zlatko Perhoc (Independent)

During the end of the last glacial Adriatic Plain forged dynamic socio-economic networks of interconnected Paleolithic groups. Exchange networking, procurement of lithic raw materials and subsistence strategies brought the opposite regions of the Adriatic closer than ever. As sea level rose towards the Holocene, the inundated landscape changed the routes or closed some that Epigravettian groups used for hunting, movement and exchange, forcing groups to focus on areas that were not previously intensively used, such as the hinterland. The transgression did not significantly change the settlement patterns; at least on the borderlines of the Adriatic plain, where the previously used sites are still frequently visited, but have changed their position in the network. Vlakno Cave on Dugi otok (Croatia), with its well-preserved stratigraphic and chronological sequence dating back to 19550 cal



BP, offers an insight into these changes. The stratigraphy with no visible hiatus, with several clear chronological and stratigraphic markers in the deposit, makes Vlakno an excellent site for studying the adaptation of the Epigravettian groups to the major climatic and environmental changes during the end of the last glacial period and the early Holocene.

**1659. LIFE ON THE EDGE: INNOVATIVE APPROACHES TO SUBMERGED LANDSCAPE STUDIES AN EXAMPLE FROM KAŠTELA BAY, CROATIA**

**Contribution format:** Oral  
**Contribution authors:** Simon Fitch (University of Bradford) – Vedran Barbarić – Slavica Bosnjak (Faculty of Humanities & Social Science - University of Split) – Jessica Cook Hale (University of Bradford)

The need to identify, assess, analyse, and protect submerged archaeological landscapes becomes more pressing by the day as offshore development initiatives gather momentum to meet the global challenge of climate change. Such sites contain invaluable information about human responses to the last period during which our species had to adapt to rapid climate changes and relative sea level rise. They are also some of the most vulnerable components of submerged cultural heritage due to their small sizes, composition of natural materials such as stone, wood, and bone, and are comparatively more difficult to detect than marine cultural heritage sites such as shipwrecks. In this paper, we present results from our work at the UKRI funded Life On The Edge (LOTE) project which seeks new methods to locate Late Palaeolithic landscapes and their associated archaeology. The paper will present, new, refined palaeolandscape reconstructions of submerged landscapes from Kaštela Bay, which have been derived from geophysical survey and combined with refined sea level projections to account for isostasy. The preliminary results of this work and the associated survey indicate the presence of a preserved, formerly subaerial landscape. This information not only reveals the diversity of this landscape but has resulted in direct evidence of these populations being recovered. It will be argued that further survey in the marine zone offer the potential to expand our understanding of the submerged prehistoric archaeology of the Adriatic and the role the region played in the Late Palaeolithic.

**2271. LITTORAL PALAEOGEOGRAPHY OF THE IBERIAN MEDITERRANEAN REGION (SPAIN): EVOLUTION OF THE COASTAL CORRIDOR**

**Contribution format:** Oral  
**Contribution authors:** J Emili Aura Tortosa – Vanessa Extrem-Membrado (PREMEDOC, Departament de Prehistòria, Arqueologia i H. Antiga, Universitat de València) – Adolfo Maestro González (GI-GEOFSUB Research Group, Departamento de Geología y Geofísica. C.N. IGME-CSIC) – Salvador Pardo-Gordó (GISPRAYA Research Group, Departamento de Geografía e Historia, Universidad de La Laguna) – Esteban Álvarez-Fernández (PREHUSAL Research Group, Universidad de Salamanca) – Jesús F. Jordá Pardo (Departamento de Prehistoria y Arqueología, Universidad Nacional de Educación a Distancia (UNED))

Paleoclimatic changes between the last Pleniglacial and the lower Holocene (ca. 35 - 7.5 ka cal BP) have affected the morphology of the Iberian Mediterranean coastal region. The combination of glacio-eustatic changes and tectonic activity has modified the previous coastal morphologies, acting unevenly along the more than 1000 km of the Iberian Mediterranean coastline stretching from Valencia to the Strait of Gibraltar. This contribution analyses the changes occurred in the morphology and extension of the Mediterranean coastal zone located between 36° and 40°N. The surface of the emerged area at the end of the Pleistocene had a variable extension, but considerably larger than the present one, appreciating differences between the regions located south and north of Cape Palos (37°38’N). Along the selected time windows, the extension of the coastal plain during the Pre-LGM, LGM, Late Glacial, Lower Holocene is compared. Its reconstruction allows us to analyse the effects of these changes on the communication of human groups along the coastline and in relation to sites located in inland valleys during the Upper Palaeolithic and Mesolithic, based on the presence of marine remains. The radiocarbon dating of regional archaeological sites has been compiled in order to establish Bayesian models of the different phases (ca. 35-7.5 ka cal BP). As for the reconstruction of the coastline, bathymetric data from the EMODnet portal were used. The location of the coastline in the different time intervals has been determined using high-resolution sea level curves of the last 60 ka BP, calibrated from the radiometric time scale SPECMAP.

**2087. WHERE DID YOU CATCH YOUR FISH? ASSESSING MARINE RESOURCES UTILISATION AND SHIFTING SEASHORES IN PREHISTORIC MEDITERRANEAN**

**Contribution format:** Oral  
**Contribution authors:** Tatiana Theodoropoulou – Gabriele Carenti (Laboratoire CEPAM, CNRS, Université Côte d’Azur) – Matthieu Ghilardi (CEREGE, CNRS, Aix-en-Provence)

The Mediterranean constitutes an ecological and cultural palimpsest, a region of intense millennia-long occupation as well as a precious archive of environmental changes and refugia-phenomena since the LGM. Although cultural sites from later periods are abundant and offer a rich dataset of coastal marine exploitation, the place of coastal environments and marine ecosystems in the socio-economic systems of prehistoric Mediterranean groups is less well documented. This is mainly due to the radical changes of the coastline since the end of the LGM, including submerged coasts or prehistoric sediments buried under alluvia, that literally erased signs of coastal human occupation along the Mediterranean coast and hinder the mapping of coastal prehistoric sites. This inevitably creates a partial or skewed image of how coastal communities interacted with these environments, especially with respect to marine resources utilization, as many sites currently located at the coastal fringe actually lied at some distance away from the coast. This paper discusses the methodological problems encountered in this region and offers a combined synthesis of available geomorphological and zooarchaeological data (fish bones, shells) collected during the ERC-funded program MERMAID.

**132 DISEASE, DISASTER & DEATH: EXPLORING RESPONSES TO HEALTH AND MORTALITY CRISES IN THE PAST**

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Regular session  
**Session keywords:** mortality crisis, health practices, mortuary practices  
**Session organisers:** Anne Malcherek – Francisca Alves Cardoso (Laboratory of Biological Anthropology and Human Osteology–LABOH, CRIA, FCSH, NOVA University Lisbon | In2PAST–Associate Laboratory for Research & Innovation in Heritage, Arts, Sustainability & Territory) – Alexandra Lopes Esteves (Lab2PT–Landscape, Heritage and Territory Laboratory, University of Minho | In2PAST–Associate Laboratory for Research & Innovation in Heritage, Arts, Sustainability & Territory) – Nicholas Marquez-Grant (Cranfield Defense & Security, Cranfield University)

**SESSION ABSTRACT**

Mortality crises are episodes in which a population experiences an acute increase in the number of deaths—they may have many causes, including natural disasters, infectious disease outbreaks, economic crisis, armed conflict, and (frequently) combinations of the above. Such crises have always caused behavioral changes at different levels, namely in the way death is viewed from a material or physical point of view, as well as in the spiritual field. Social responses to such events are varied across cultural and spatiotemporal contexts, and they connect and intersect in complex ways. Changes may include, but are not limited to: disruptions and innovations in burial customs and mortuary practices, public and individual health measures, legal and policy responses, as well as personal and artistic expressions. Such responses not only exhibited a great deal of variation but were also often socially contentious and did not affect all members of a community/population in the same manner, thus leaving contradictory and hard to interpret traces in the material and written records. We invite submissions that engage with the multivocality of responses to health and mortality crises in the past, as reflected in the archaeological and historical records. We are particularly interested in multi- and interdisciplinary submissions, which combine a variety of methodological approaches and sources—including archaeology, history, (bio) anthropology, archaeoethanatology, and geobiochemical approaches.

**CONTRIBUTION ABSTRACTS**

**1270. MY BONES HURTS: EVALUATION OF THE STATE OF HEALTH DURING THE HALLSTATT PERIOD IN TAUBERBISCHOFSCHEIM-IMPFFINGEN, GERMANY**

**Contribution format:** Oral  
**Contribution authors:** Rocio Herrera Reyes (Independent Researcher) – Marta Díaz-Zorita Bonilla (Eberhard Karls Universität Tübingen)

The State Monument Protection Office of Baden-Württemberg carried out a rescue excavation in the 1970s, outside the town of Impfingen-Tauberbischofsheim. They found a cemetery area with burials from different eras, including the Neolithic period (5000-2200 BCE), and the Hallstatt period, specifically for the Late Bronze Age/ Pre-roman Iron Age (1200-450 BCE). This project concentrated on the Hallstatt period burials and tried to reconvene the context with the osteological analysis. More than 400 individuals were recovered from Gewann Rebhuhn rchaeological site, coming from inhumed and cremated assemblages, placed in various types nd sizes of structures. Around 254 individuals were categorized as belonging to the Hallstatt period. The criteria applied according to



the main objective was the use of inhumed individuals with at least 60% to 70% of their skeletons, from which the results show diverse osteological responses in their bones, leading to the diagnosis of possible pathological cases. The contextual information has been organized within common factors like the disposition, type, and amount of offerings, which can also be related to sex differences. The placements of the bodies were done directly on the bedrock or inside wood coffins, and in stone hexagonal structures. From the 24 individual samples, a couple of them present unusual body placements or lack of offerings; nonetheless, no signs of crisis or struggles seem to be visible. If we focused on the osteological analysis, the majority of the individuals show different types of lesions, from developmental issues to degenerative joint diseases with or without enthesal changes to infectious diseases in bones and teeth. The results of possible diagnoses show a probable case of poliomyelitis, periostosis on long bones, and other stress markers in the cranium and teeth. This project should light up an area and period that requires more understanding from our part.

**945. UNRAVELLING THE CIRCUMSTANCES LEADING TO MULTIPLE BURIALS IN ST. ROMBOUT’S CEMETERY IN MECHELEN, BELGIUM (10TH-18TH CENTURIES AD)**

**Contribution format:** Oral  
**Contribution authors:** Katrien Van De Vijver (Royal Belgian Institute of Natural Sciences) – Benjamin T. Fuller (Department of Chemistry ‘G. Ciamician’, University of Bologna) – Karen Giffin – Arthur Kocher (Department of Archaeogenetics, Max Planck Institute for Evolutionary Anthropology, Leipzig) – Ioannis Kontopoulos (Department of Geosciences, University of Tübingen) – Megan Michel – Federica Pierini – Kirsten Bos (Department of Archaeogenetics, Max Planck Institute for Evolutionary Anthropology, Leipzig)

Excavations at St.Rombout’s cemetery (10th-18th centuries AD) in Mechelen, Belgium. uncovered 4,158 articulated individuals. Most were buried in single graves but archaeologists also recorded 65 multiple burials, which included 2-14 individuals buried simultaneously in the same grave. Overall, 103 individuals from multiple burials were studied in detail and two types of multiple burial were analysed further, using both bioanthropological and biomolecular analyses to better understand the circumstances that led to these unusual graves. One type of multiple burial, dated to the 15th-early 17th century, consisted of burials with one deposition phase. The other type, dated after 1640, showed several phases of simultaneous deposition. The observed differences suggest varied responses to unusual mortality. The bioanthropological study found important differences, with high numbers of adolescents, young adults, and males in the multiple burials compared to single depositions, as well as differences between the types of multiple burial. In addition, individuals from multiple burials showed more evidence for growth disturbances, mechanical stress and disease. This suggests that multiple burial was related to social background, as well as particular circumstances of death. While the single phase multiple burials indicate abrupt mortality crises, several phases of use in simultaneous burials suggests the graves were used over longer periods. This indicates an association with a nearby Spanish military hospital from the late 16th-early 18th century. Recent biomolecular analyses corroborate this hypothesis, with human population genetic analyses finding a sub-group in the cemetery with a southern European ancestry. In addition, pathogenomic analyses have so far indicated hepatitis B, malaria, paratyphoid fever (Salmonella enterica enterica Paratyphi C) and plague (Yersinia pestis), suggesting disease and epidemics were at least partly responsible for the multiple burials. Finally, preliminary stable isotope ratio analysis also found dietary differences between individuals interred in single versus simultaneous depositions.

**1418. FUNERAL PRACTICES AND CONGENITAL DEFORMITIES: STUDY OF AN ANOMALOUS BURIAL IN VERCELL**

**Contribution format:** Oral  
**Contribution authors:** Roberta Fusco – Chiara Tesi – Nicole Rossetti – Arianna Vanni – Marta Licata (Department of Biotechnology and Life Science, University of Insubria)

The underground cemetery of Santa Maria Maggiore in Vercelli (18th century) offers a complex stratigraphy of funerary practices shaped by broader social and religious transformations. Among the individuals recovered, a striking case is that of a woman over 60 years old, interred in a prone position within a coffin. Anthropological analysis reveals she had severe congenital scoliosis, leading to a visible spinal deformity associated with chronic pain and physical limitations. Prone burials are often interpreted as “deviant” or “anomalous”, commonly linked to necrophobic beliefs and attempts to control the dead. However, this burial defies such a straightforward reading. Located in a privileged funerary chapel within an elite cemetery intended for the local nobility and accompanied by a votive medal with the head oriented towards the altar, the burial suggests a devotional rather than punitive context. The woman was not isolated but interred among others, members of a family group, indicating continued inclusion in the social fabric. This case challenges binary interpretations of anomalous burials as purely expressions of stigma or marginalization. Instead, it invites a more nuanced understanding of how pathological conditions, religious beliefs, and shifting perceptions of the body shaped mortuary responses during times of

health uncertainty and high mortality. By combining archaeological, anthropological, and historical data, this study contributes to broader discussions on how past societies articulated care, exclusion, and spiritual concern in the face of embodied difference and death.

**1965. UNVEILING THE VICTIMS OF THE 19TH-CENTURY CHOLERA OUTBREAK: BIOARCHAEOLOGICAL INSIGHTS FROM THE OPORTO MUNICIPAL PUBLIC LIBRARY EXCAVATION (PORTUGAL)**

**Contribution format:** Oral  
**Contribution authors:** Lucy Evangelista (Era Arqueologia, SA | CIAS - Research Centre for Anthropology and Health - University of Coimbra | ICArEHB - Interdisciplinary Centre for Archaeology and Evolution of Human Behaviour) – José Carvalho – Francisco Raimundo – Sérgio Amorim – Sofia Nogueira (Era Arqueologia, SA)

The archaeological excavation conducted at the Porto Municipal Public Library was carried out as part of impact mitigation efforts associated with the rehabilitation and construction project on the site. The fieldwork, undertaken since September 2024, focused on the external area—formerly a parking lot—where a cemetery for victims of the cholera outbreak that struck Porto in the 1830s was uncovered. A total of 4. graves were identified. of which 33 have been excavated to date. A total of 85 individuals were recovered, including 65 adults and 20 non-adults. Among the non-adults, the demographic distribution includes two fetuses, seven infants (0–3 years), five children (4–12 years), and five adolescents (13–20 years). Sex estimation of adult individuals revealed 15 females and 17 males, while the sex of the remaining 33 individuals could not be determined. Despite the poor preservation of skeletal remains, paleopathological analysis identified signs of physiological stress, including cribra orbitalia and porotic hyperostosis, as well as evidence of infectious conditions, degenerative joint disease, and non-articular degenerative changes. Dental analysis recorded the presence of caries, calculus, periodontal disease, periapical inflammation, enamel hypoplasia, and antemortem tooth loss. These findings offer critical bioarchaeological insights into the health, living conditions, and mortality patterns of Porto’s 19th-century cholera victims. The ongoing research will further contribute to a multidisciplinary understanding of epidemic outbreaks and their impact on past urban populations. The excavation is expected to be completed by March 2025, and a research project is currently being developed to integrate both the historical contextualization and the bioarchaeological study of the human remains recovered at the Porto Municipal Public Library. This initiative focuses not only on the factors that contributed to epidemic crises—such as the 1833 cholera outbreak—but also on how past societies responded to such events.

**110. “AND EVERYTHING CHOLERA REVEALED”. THE SANITARY STATE AND POLITICAL RESPONSES TO THE 1855 CHOLERA EPIDEMIC IN THE CITY OF PORTO**

**Contribution format:** Oral  
**Contribution authors:** Tânia Ferreira – Alexandra Esteves (University of Minho)

When in 1855, a new cholera epidemic reached the city of Porto and the northern region of Portugal, the deficient sanitary state of these territories facilitated the spread of the disease. In fact, at a time when basic sanitation was practically non-existent and poor hygiene conditions were generalized, cholera had no difficulty in infecting a debilitated population. At the same time, the disease exposed the fragilities of the public health system in Portugal and was a trigger for reforms in this sector, as had happened during the first outbreak in the country in the thirties of the 19th century. Using a variety of documentary sources, such as documentation from the Civil Government and Porto City Council, medical reports and hospital records, as well as the periodical press, this communication aims to demonstrate the health status of the population, as well as the social and political responses implemented to the 1855 cholera epidemic in the city of Porto. By cross-referencing sources, it will be possible to assess how social and territorial inequalities contributed to a differentiated incidence of this epidemic, as well as the level of preparation of the medical and political authorities for an epidemic that was not unknown in the territory.

**2162. CITY LIFE: A DOUBLE-EDGED SWORD? THE IMPACT OF URBANIZATION ON HEALTH-INSIGHTS FROM THESSALONIKI’S UNIQUE CASE**

**Contribution format:** Poster  
**Contribution authors:** Christina Kakasa – Asterios Aidonis – Elissavet Ganiatsou – Panagiota Bantavanou – Aggelos Souleles – Christina Papageorgopoulou (Laboratory of Physical Anthropology, Democritus University of Thrace)

Urbanization is considered one of the most significant transformations in human history, shaping cities through complex social, economic and technological systems over time. While the impact of urbanization on health is well-documented in modern societies, its effects on the health of ancient urban populations remain less understood. This study offers insights into how urban growth affected human health and societal dynamics in Thessaloniki, viewed through the lens of biological anthropology. Thessaloniki, is a city with a rich history and



continuous urban development since its foundation in 315 BC, and represents a unique case to examine health in ancient urban settings. The city’s extensive archaeological and historical record provides critical evidence of urban development and societal change over time. The sample includes 1,000 skeletons dating from the Hellenistic to Byzantine periods (3rd BC-15th AD), making it one of the largest datasets of its kind. Health is assessed using two key markers: stature and enamel hypoplasia. Enamel hypoplasia is a dental condition resulting from acute physiological stress, such as poor nutrition or illness, while similar instances and poor living conditions may result in shorter stature. These markers combined offer insights into the health challenges faced by ancient populations. In more detail, we aim to examine the correlation between enamel hypoplasia and shorter adult stature, investigating whether early-life physiological stress impacted growth and influenced adult mortality risk. This data will be combined with isotopic data on early-life diet using incremental dentine analysis and with hypoplasia at the histological level. We also focus to identify the historical periods, during which people were more susceptible to morbidity and lower health levels. Our study provides a clearer understanding of Thessaloniki’s health trends, revealing how urbanization shaped its population’s well-being and resilience. Funding: ERC-Consolidator Grant CityLife (Project: 101126337).

133 INTERTWINED THROUGH SPACE AND TIME: ARTEFACT USE AND REUSE ACROSS CULTURAL CONTEXTS

Session theme: 1. On artefacts and beyond  
Session format: Regular session  
Session keywords: artefact, ontology, entanglement  
Session organisers: Emily Miller Bonney (California State University Fullerton) – George Prew (Treasure Trove Unit National Museum of Scotland)

SESSION ABSTRACT

Artefacts often reveal the entanglement of different cultures. Imitating motifs or appropriating technologies are some ways in which one society may lay claim to another’s material language. Such transfers from one creative source to another may still evoke their significance to the people from whom they were borrowed but, recontextualized, may also communicate the realities of their new cultural home. The movement of actual objects and their reuse across time and space raise different issues. Do the new “owners” regard the alien item as exotica or do they attempt to modify it in some way to make its original meaning resonant with their social values and expectations. What do the choices they make in the process of integrating the item into its new cultural home reveal about the new content of the object and its reality and its cultural entanglement? If they do not alter it what strategies do they employ to render it understandable or do they emphasize its novelty? If the object is not moved physically but remains in situ until, perhaps centuries later, a quite different culture discovers and reuses it, what is the result of this chronological shift? Can we detect their understanding of what might be an otherwise unintelligible object? These questions raise not just formal considerations but ontological as well. What is the reality of this reused item? What consequences does the cultural reframing impose on the meaning of the object? What impact can such transformations have on their material language? We seek papers from any chronological period or geographical location that explore these questions. While we encourage submissions that focus on a single object we also welcome papers that consider multiple objects or entire deposits of artefacts.

CONTRIBUTION ABSTRACTS

33. THE NILE AND THE THAMES: ANCIENT EGYPTIAN FINDS FROM THE BRITISH COUNTRYSIDE

Contribution format: Oral  
Contribution authors: Jason Lundock (Full Sail University)

This paper examines the curious phenomenon of objects of ancient Egyptian manufacture discovered in the rural plough soil of Britain and what might be inferred regarding the object biographies and cultural significance of such objects. Analysis will be offered of the site profiles, based upon other datable objects discovered in the vicinity of each find, which will provide the most likely timeframe within which the objects from Egypt were imported, utilised and deposited. Comment will then be offered regarding the place of these objects within the complex cultural backdrop of identity and multi-culturalism in Britain and how this may be utilised to inform current discussions of the cultural heritage of the island. While coin finds will be considered, the discussion will focus on small figurines and cult images discovered in the plough soil and elsewhere in rural Britain to build its argument for the cultural significance of the concept of ‘Egypt’ in the British countryside.

1315. REUSE AND REUNION: ROMAN METALWORK EMBRACED IN LATE IRON AGE CAULDRON HOARDS

Contribution format: Oral  
Contribution authors: Wenqing Zhang (University of Edinburgh)

The entanglement of Roman artefacts in Late Iron Age contexts appears frequently in British archaeological materials. One of the uncommon cases is the Carlingwark Loch cauldron hoard consisting of a large bronze cauldron and about 100 items including fragments of both local and Roman metal artefacts placed inside the vessel. These metalwork items cover various themes and aspects of both domestic and non-domestic contexts including cooking, feasting, transport and movement, personal ornaments, and agricultural tools. Some of the Roman objects have military associations. Iron Age cauldrons have long been suggested to be feasting vessels yet the Carlingwark hoard is a likely of non-domestic deposition. However, less attention is paid to who owned those artefacts and how did they end up together in a large cauldron under water? What social-cultural and ritual contexts might they relate to when they were possibly passing down from hand by hand across time or groups? Thus, this paper takes the Carlingwark cauldron hoard as a case study by using a biographical approach to reinvestigate possible uses of the Roman objects in the hoard. When the objects of Roman influence moved out of Roman hands, what changes might these objects have experienced in local Iron Age living and hoarding practice? Reversely, how may the uses of those Roman finds remain by locals? Why are certain types of artefacts contained in the large cauldron selected intentionally and how do these compositions differ in different cauldron hoards? This paper will therefore also address similar cauldron hoards in Britain, especially from North Britain from the Late Bronze Age to the Roman Iron Age to discuss how the use of Roman artefacts in cauldron hoards in Iron Age Britain could reflect relationships between Romans and locals not only in political and economic but also in ritual contexts.

641. COPYCATS AND MISTAKEN IDENTITIES: THE RE-USE OF STANDING STONES IN SCOTLAND

Contribution format: Oral  
Contribution authors: Heather Ford (University of Glasgow)

Prehistoric standing stones have served as a physical resource in the landscape of northern Britain for millennia. They have been variously re-used in larger structures, e.g. souterrains; adopted as foci for new ritual activity, e.g. cremation deposits; and carved to create new monuments, e.g. with Latin, Ogham, and/or Pictish symbols. As Bradley (1987, 1993, 2002, 2016) has emphasised, they are equally a symbolic resource. While the re-use of prehistoric standing stones is regularly noted, there are two cognate phenomena which have not been adequately addressed: perceived re-use and the re-use or use of imagery. These phenomena assuage arguments of incidental or solely pragmatic re-use and instead foreground the mechanisms and applications of re-use. Using Pictish symbol monuments, this paper will demonstrate how explorations of perceived re-use and the re-use of imagery can help recover contemporary approaches to standing stones – from the material selection process to the creation of meaning. Drawing on three case studies– a naturally cupmarked stone and an undressed stone (both erected in the Early Medieval period), as well as a re-used prehistoric standing stone . this paper will consider how holistic approaches to re-use can deepen our understanding of the cultural and temporal entanglements underpinning the phenomenon.

969. THE SACRED SPACE OF THE MEGALITHS: THE MAHAKAL DARA TEMPLE IN DARJEELING, INDIA

Contribution format: Oral  
Contribution authors: Upasna Chettri – Sukanya Sharma (Indian Institute of Technology Guwahati)

The megaliths in the context of Sikkim-Darjeeling Himalayas is a sparsely investigated topic. Some are visible on the landscape and some, though are not physically present are embedded in the memory of the inhabitants. However, some are re-contextualized for new forms of veneration by several groups of people over the course of time. This study investigates the third phenomenon with the help of a case study of Mahakal Dara Temple in Darjeeling. In the Sikkim-Darjeeling Himalayas, the practice of erecting megaliths, known as Longchok, was prevalent among the Lepcha community. However, in contemporary times, some of these megaliths are reinterpreted as sacred shrines and temples. Mahakal Dara Temple, being at the center of this investigation, serves as a focal point for examining the contexts and processes through which Longchoks have been repurposed and reinterpreted in the region. Methodologically, this study employs ethnographic observations and historical accounts to explore the relationship between material evidence and cultural interpretation within the communities of the region. The analysis also points towards transition that signifies adaptability and malleability of cultural symbols within different historical and cultural frameworks. The shifting cultural perspectives emphasize the significance of local beliefs and practices in shaping the meaning and visibility of megalithic structures over time. Thus, the key contribution of this study lies in demonstrating how the evolving interpretation of material evidence, in this case the megalith of Mahakal Temple, sheds light on the historical, political, and cultural transitions of the region, while at the same time, also demonstrating how these transitions influence the interpretation of the material.



2273. MEANING THROUGH MARITIMITY: EXPLORING SHIFTS IN STONE ANCHOR USE AND INTERPRETATION AT KITION, CYPRUS

Contribution format: Oral  
Contribution authors: Jaris Darwin (University of Cyprus)

More than 100 stone anchors have been found scattered throughout the ancient Cypriot city of Kition, primarily within the sacred district of Kathari (Area II). While Kition has been extensively excavated and numerous publications have focused on this polity, the reason so many anchors were found at this site is unclear; they primarily originate from Late Bronze Age floors of Area II, with a number of exceptions, and were incorporated into various features and elements at the site, from walls and thresholds to altars and benches. This paper utilizes GIS to explore the spatial distribution of anchors and statistical analyses to ascertain patterns in anchor placement, size and physical characteristics. These methods will help ascertain the meaning(s) associated with the stone anchors of Kition, and whether they may have shifted over time or varied between structures at the site. Two other major centres in the Eastern Mediterranean, Ugarit and Byblos, have also documented large quantities of terrestrial stone anchors, similarly coming from religious areas. Ugarit especially was a major trading partner of Cyprus (and Kition) in the Late Bronze Age, and the potential meanings attributed to terrestrial anchors at all three sites will be addressed to determine the (potentially) impact of culture on interpretation of anchors. Finally, anchors in their basic form are a tool used by seafarers. Whether differing contexts—secular and sacred—resulted in different meanings being attributed to these stone artefacts will be examined through the lens of Kition.

1514. BETWEEN ECONOMY AND CULTURE: THE ROLE OF FOREIGN COINS IN THE INDIAN OCEAN SOCIETIES

Contribution format: Oral  
Contribution authors: Emilia Smagur (Polish Centre of Mediterranean Archaeology, University of Warsaw)

The discovery of foreign coins provides crucial evidence of interactions between different regions of the ancient Indian Ocean world. However, they have often been primarily viewed as indicators of trade and foreign contacts, leading to limited exploration of their broader cultural significance. Coinage, as a cultural phenomenon, is deeply embedded in specific societal norms, meaning its function and interpretation vary across cultures. Coins and money can only be fully understood within the broader cultural framework in which they were used. Moreover, value itself is a social construct, defined by the cultural context in which it was created. Foreign coins could serve as powerful social instruments, symbolizing relationships between places, objects, individuals, and deities—relationships that were not always based on exchange value. As a result, these coins could circulate across different spheres of value, transcending their conventional economic role. This paper examines foreign coin finds from the Red Sea region, the Gulf, and the Indian subcontinent to reveal how they were integrated into local cultures, often repurposed and reinterpreted. It also explores the similarities and differences in how Indian Ocean communities perceived and used foreign coins, considering both human and object agency in shaping these processes. Ultimately, this study aims to enhance our understanding of how objects acquired value in specific historical and cultural contexts.

102. WHAT IS A VESSEL FOR? RESIGNIFICATION AND AESTHETIC REUSES OF GREYWARE POTTERY IN CATALONIA

Contribution format: Poster  
Contribution authors: Esther Travé Allepuz (Universitat de Barcelona) – Joan Vicens Tarré (Universitat de Girona)

The production of pottery fired under reducing atmosphere, commonly known as greyware pottery, has been a constant presence in Catalonia for many centuries, from the Early Middle Ages to the present day. Rooted in Late Roman Coarse Wares, it became the predominant production in medieval Catalonia, especially in rural areas. Despite the widespread adoption of glazed pottery, initially in luxury contexts and later in everyday use, greyware pottery never disappeared. Even after the deep crisis in the 20th century, when ceramics were largely replaced by plastic and other materials, greyware continues to be produced in Catalonia, albeit in a residual form. Meanwhile, many pottery items from the modern era, produced throughout the 18th and 19th centuries, and even older pieces, have entered the world of antique dealers and collectors, who value them as testimonies of the past. In some cases, they become cult objects, while in many others –without historical awareness from their owners– they are preserved simply as family traditions, often after a change in function. For example, some of the former basins used for laundry or grain storage, and large jars from wineries and barns in Catalan farmhouses, are now repurposed as garden features, holding plants and flowers. In all cases, a new bond is created between the person and the object, mediated not only by its current use –which is no longer the same– but also by the historical use made by previous generations. The artefact acquires new symbolic significance, connecting

the individual to their familial past. Enriched with this new sentimental layer, the once-functional greyware vessel now takes on new roles, either as a decorative object or as a didactic element with intrinsic heritage value. Our contribution explores this transformation and its implications for archaeological knowledge and offers some examples about this phenomenon.

134 EXPLORING EMOTIONS IN PREHISTORIC AND HISTORIC CONTEXTS THROUGH MATERIAL REMAINS

Session theme: 1. On artefacts and beyond  
Session format: Regular session  
Session keywords: Emotional Archaeology, Material Culture, Environmental Change, Cross-Cultural Research, Emotional Landscapes, Interdisciplinary studies  
Session organisers: Milica Mitrovic (University of Belgrade) – Sanna Lipkin (University of Oulu)

SESSION ABSTRACT

We invite submissions that explore the role of emotions and emotional bonds in prehistoric and historical contexts, focusing on how emotional experiences can be understood through material remains. This session seeks to integrate insights from psychology, anthropology, evolutionary biology, sociology, philosophy, and archaeology to examine how emotions, affects and feelings are expressed in material culture. Research investigating the interconnectedness of emotions with cognition, behaviour, and material practices is especially welcome. Topics might address community responses to cultural and environmental changes and the emotional facets of daily life, as evidenced by archaeological findings. Comparative cross-cultural and interdisciplinary perspectives are encouraged, with themes that include emotionally charged contexts such as interpersonal bonds, parenting, expressions of care and violence, intergroup conflicts, rituals, death rites, and emotional connections with animals, the natural environment, and inanimate objects, as well as emotions of non-human animals. Contributions may also address the emotional impact of environmental changes and societal transitions, such as interactions between Neanderthal and anatomically modern humans, the spread of Neolithic culture across Europe, or migration during various historical periods. How did local communities emotionally respond to the arrival of new lifeways and populations? How did those who relocated respond to their new living surroundings? How have people responded to environmental changes and species loss? Were these encounters marked by fear, resistance, grief, or positive emotions. We also emphasize the significance of reflective, emotionally aware writing and the researchers’ emotional connection to the subject matter as integral to exploring past emotions. Abstracts presenting case studies and new theoretical and methodological approaches are encouraged to foster interdisciplinary exploration of the emotional lives of past communities and the landscapes they inhabited.

CONTRIBUTION ABSTRACTS

648. EMOTIONS IN TRANSITION: MATERIAL REFLECTIONS FROM THE MESOLITHIC TO THE NEOLITHIC

Contribution format: Oral  
Contribution authors: Milica Mitrovic (Archaeological Collection, University of Belgrade)

Studies on emotions confirm both their natural and cultural foundations. Basic emotional capacities are innate and emerge early in phylogenetic development across all known cultures and in higher mammals. However, the organism actively interacts with its environment and plays a crucial role in its own development. Can a unified methodology for studying emotions in archaeology be developed? Just as the study of emotions in other disciplines does not follow a uniform path, neither can archaeology, as each new investigation expands the possibilities and scope of emotional reconstruction. Nevertheless, the knowledge of emotions and previous archaeological research provide some fundamental guidelines: 1) While there is no consensus on the universality of emotions, we are biologically predisposed to experience basic affects 2) The materiality and emotional life of a given culture (and of the human species as a whole) are deeply interconnected. Psychological research has confirmed the interconnection of cognition, emotion, and behaviour, encouraging archaeological efforts to incorporate emotional factors into the interpretation of material culture. If artifacts, bioarchaeological remains, and landscapes allow for the reconstruction of past human actions and thought processes, they are valid for assessing emotions. As with other aspects of research, understanding the context of findings is essential for interpreting emotions. When archaeologists write about emotions, they describe their experiences and perceptions, not as direct analogies but as sources of inspiration, hinting at competence and responsibility in addressing a particular topic. From the emotional perspective of a researcher shaped by a country in transition during the era of globalization, I examine Mesolithic hunter-gatherer communities encountering the agricultural world of the Neolithic, exploring: 1) Whether traces of prehistory reveal cultural temperaments - cultures of hope or cultures



of fear, 2) How material culture reflects the relationship between collective, group, and individual emotions in times of instability.

**1764. A GLIMPSE INTO ANCIENT BONDING: THE SIGNIFICANCE OF A ZOOMORPHIC FIGURINE WITH CHILD’S IMPRINTS FROM THE VINČA CULTURE**

**Contribution format:** Oral  
**Contribution authors:** Lidija Balj (Museum of Vojvodina)

In this paper I will present a case study of a zoomorphic figurine found at the multilayered Gomolava site, originating from the Vinča culture. This representation depicts a four-legged animal, probably a bovine, with a small dent resembling a receptacle in place of its head. Although this figure may not appear aesthetically pleasing at first glance, its body is well-crafted and carefully polished. The most significant feature of this artefact is the presence of well-preserved fingerprints, formed when the ridge on the back was created. Papilloscopic analysis conducted at the Ministry of the Interior in Novi Sad (Serbia) revealed that the fingerprints belonged to a child approximately four years old. Based on the manner in which the figurine was made and the fingerprint analysis results, it can be inferred that it was created through the collaboration of an adult and a child. While the figurine was not made with great attention to detail, it is clear that the emotional connection between the two creators is undeniable. After the adult shaped the figurine, the child contributed by using their fingers to form the ridge on the animal’s back. This shared moment of creation, marked b. emotional bond, left its imprint on the piece. Thanks to the characteristics of clay—a soft material that is easily shaped and hardens after firing, preserving permanent traces of modeling and use—we are witnessing a joint creative endeavor between an adult and a child. This figurine is just one example of small ceramic objects that enrich our understanding of childhood during the Vinča culture. In this presentation, I will discuss a few more such objects and explore their potential interpretations.

**647. RITUAL PERFORMANCE, AND THE UNDERWORLD: EXPLORING THE EMBODIED EMOTIONS OF DEATH IN MALTA’S LATE NEOLITHIC HYPOGEA**

**Contribution format:** Oral  
**Contribution authors:** Dawn Saliba (University of Malta)

Architectural remains and material evidence from Neolithic Malta’s two underground necropolises—the Hypogeum of Ħal Saflieni and the Xagħra Circle (c. 4,100–2,400 BCE)—offer archaeologists the unique opportunity to explore the emotional experiences of Malta’s prehistoric “Temple” civilization. Evidence from both hypogea indicates these underground structures functioned as sites of elaborate ritual performances, likely death-rites, as well as resting places of the dead. Ħal Saflieni’s monumental architecture, acoustics, and spatial organization reveal sophisticated proto-theatrical engagement, while rich material remains yielded from the Xagħra Circle’s excavations display complex burial praxis, including skeletal disarticulation, animal sacrifice, and the deposition of grave goods. Taken together, these elements provide a framework for exploring possible emotional dimensions surrounding death, including mourning, ancestral veneration, and spiritual encounters with the departed. Embodied movement analysed through on-site phenomenological experimentation and reflexive documentation further suggests that these subterranean labyrinths were purposefully constructed as powerful sensory landscapes designed to elicit profound emotional responses, including wonder and awe. Ritual architecture implemented in the structural design served as a focal points for performative engagement, enhancing the embodied emotions of ritual performers, practitioners, and spectators alike. Likewise, evidence of sound-engineering within Ħal Saflieni amplified acoustics, further heightening the emotional intensity of performative ritual. Through an interdisciplinary approach incorporating archaeology, anthropology. phenomenology, and performance theory, this study elucidates how the hypogea’s material and architectonic remains facilitated communal expressions regarding the afterlife. In both Ħal Saflieni and the Xagħra Circle, emotions surrounding mortality were expressed not only through burial practices but also through performative ritual within monumental proto-theatres, thus creating shared, liminal immersive experiences that bound communities together.

**1219. HOARDS AS AFFECTIVE PRACTICE: A CASE STUDY FROM SNETTISHAM, NORFOLK**

**Contribution format:** Oral  
**Contribution authors:** Jody Joy (Museum of Archaeology and Anthropology, University of Cambridge)

Influenced by recent work in the social sciences on affect and emotion, this paper takes a different approach to prehistoric hoards by arguing hoarding is an affective practice, a process which has emotional effects on its participants. Traditional approaches to prehistoric hoards have tended to focus on whether they were deposited for safekeeping and later retrieval or were votive deposits. Concentrating on explaining the wider process of hoarding has a universalising effect, implying a single meaning or reason for a widespread practice risking overlooking the impact of discrete deposits and actions where processes are repeated, but rarely as precise duplicates of one another. Taking as its case study the Iron Age hoards from Snettisham, Norfolk, UK, the potential

emotional effects of selecting objects for deposition and the performance of burying them in the ground will be examined. It will be concluded that viewing hoards as an affective practice is potentially advantageous because it focuses attention on what prehistoric hoards did rather than what they might have meant.

**1653. MONUMENTS AS ACTIVE COOPERATION. MOUND CONSTRUCTION, EMOTIONAL REGIMES, AND THE 536 AD CLIMATIC HAZARD OF ØSTLANDET, CENTRAL SCANDINAVIA**

**Contribution format:** Oral  
**Contribution authors:** Andreas Sæbø (University of Oslo)

Scandinavia and other parts of Europe suffered a series of dramatic tumults in approximately the middle of the 6th century AD, including but not restricted to climatic deterioration and wide-spread famine. The event has been suggested as the historical background for the myth of the Fimbulwinter, the prelude to the end of the world in Norse mythology. In areas such as Østlandet, present-day Norway, the 6th century cooling event coincided roughly with, first, the construction of larger earthen monuments – mounds – than Scandinavia had ever seen before. Second, with peak and eventual sudden, drastic reduction in deposition of gold and other artefacts. This presentation explores the move from gold to mounds from a Durkheim-inspired approach to mass rituals. By comparing the affordances and allowances of the materials employed in mound construction versus artefact deposition I examine the emotional regimes of people whose world was ruptured by climatic change. The presentation is inspired by and draws on psychological studies of mass congregation and solidarity.

**1471. EMOTIONAL ATTACHMENTS RELATED TO ARCHAEOLOGICAL TEXTILE FINDS**

**Contribution format:** Oral  
**Contribution authors:** Sanna Lipkin (University of Oulu)

This paper aims to offer a more nuanced understanding of the emotional and social meanings tied to textile items found in archaeological contexts, helping to reconstruct the experiences and resolutions of people in the past. Textile items often carry emotional value, serving as identity, memory, or status expressions. Examining the contexts in which these textiles were found, such as burials, can offer clues about their significance to individuals or communities. Furthermore, the physical condition of textiles – evidence of mending, patching, or wear – can reflect personal attachment, suggesting long-term use, care, and value placed on the items by their owners. Additionally, textiles can be linked to emotional bonds, such as feelings of comfort and security, but also to more complex emotions, such as those associated with losing a loved one and inheriting ‘useless’ yet emotionally significant items. Based on modern psychological attachment theory and through a selection of examples, this paper aims to study the attachment that people in the past may have had to personal belongings and other textile items.

**1631. EMOTIONAL RESPONSES TO DEATH IN MEDIEVAL IRELAND: INSIGHTS FROM RANELAGH, CO. ROSCOMMON, IRELAND**

**Contribution format:** Oral  
**Contribution authors:** Eileen Murphy (Queen’s University Belfast)

The remains of some 527 human skeletons were recovered during excavations at the predominantly Early Medieval (AD 600-1150) settlement cemetery of Ranelagh, Co. Roscommon, Ireland. The majority of the Ranelagh people were interred in an extended, supine position, with their head to the west – the typical position for a Christian. However, a proportion of individuals were buried in an atypical manner and such graves can be particularly emotionally charged. Using a multi-proxy approach that includes osteoarchaeology, palaeopathology and archaeo- thanatology, the individuality of some of these burials will be explored. This approach explores the nature of the deceased’s life as well as how they may have been viewed by the society in which they lived. It can provide glimpses of the heightened emotions the dead person may have experienced during their life, while also revealing insights about the emotional investment made by the living when preparing a burial. Love and concern for the deceased are evident at one end of the spectrum of feelings, while indifference, fear and hatred can be found at the other. A deeper understanding can be gained about the diversity of ways in which individuals in a Medieval community could respond when faced with a death. In some cases, the evidence suggests that it may have been viewed as a particularly tragic loss or, conversely, one that was of little importance. An unusual death could elicit an extreme reaction. These diversities of emotional responses all serve to remind us of the humanity of the past people we study.

**403. FROM LOVE TOKENS TO GRAVE GOODS: THE EMOTIVE DIMENSION OF CLAY TOBACCO PIPES**

**Contribution format:** Oral  
**Contribution authors:** Sabrina Liebetrau (Independent)

Omnipresent cultural artefacts in post-medieval Europe, clay tobacco pipes provide multiple gateways to everyday



culture. Most of them can be dated, assigned to their makers, and feature images of life and beliefs typical of their time. Yet do these characteristics give explicit insights into the emotional worlds of the people involved in pipe smoking? Based on psychological and anthropological theories about the role of objects in the formation of self-image and non-verbal communication, it seems plausible to look for material identities in smokers and their pipes. This pipe study will therefore not focus on the emotional ties caused by addiction, but on the socio-emo-tional aspects of material culture. In this context, pipe finds are to be considered as a potential link to their owner’s emotional life and rites of passage, and a semiotic approach might help to understand what feelings the design of clay tobacco pipes could have triggered in smokers and observers. Pipes came both as plain commodities and as works of applied art, designed to provide daily comfort but also mark the most extreme moments in human life. Featuring period symbolism and personalised letterings, pipes can tell stories of loving relationships, heartfelt faith, and political pride. Even without decorations, scientific research, just like pure archaeological methods, can prove that pipes played a role in human tragedies like the thirty year’s war or slavery. In sum, a more holi-stic approach can enable pipe research to explore the socio-emotional connections to and through clay tobacco pipes and thereby recognise them as a materialised form of emotions.

**1786. GHOST OF THE PAST. EMOTIONS ATTACHED TO THE EARLY MODERN FINNISH EXECUTION SITES IN MUHOS, FINLAND**

**Contribution format:** Oral  
**Contribution authors:** Marisa Kuusisto (University of Oulu)

The act of executing a tried and condemned criminal is one full of many emotions: the emotions of the person to be punished by death, as well as those of the people in the community and society as a whole. The archaeolog-ical study of execution sites offers a fruitful tool for us to look deeper into the many emotions attached to these sites—not only in the past but also in present-day society. In my presentation, I look into the case of the Northern Ostrobothnian Finnish town of Muhos, where we find two separate local execution sites (named Teerikangas and Rovastinsaari) used between the years 1758–1802. Altogether, five individuals were executed in Muhos during these years. Looking into historical records and local folklore, as well as studying the local landscape and pres-ent-day usage of the sites, I aim to establish a view of these sites as being filled with strong emotions and meanings.

**2226. HEAVY STUFF: ANGER, ABUSE AND IMPULSES IN THE PAST**

**Contribution format:** Oral  
**Contribution authors:** Saara Tuovinen (University of Oulu)

Archaeology of the attachment has been able to bring up new elements of past people’s emotional lives. Care, nurture and even love are essential human feelings. The attachment theory has brought us the attachment models and what their significance plays in the further life of an individual. Always the human relations are not positive, just like all the emotions we feel are not positive. Negative feelings can also be seen in neglect and abuse. We do not yet understand fully the processes behind all of such behavior, but in this work these feelings are approached and presented as a theme useful and suitable for archaeology of emotions. This presentation als. approaches the negative feelings through the historical archive material, applying it to the themes of archaeology of attachment. In this presentation the main focus is on the negative themes such as bad family relations and neglect. The war, emotional detachment and generational trauma have had a long shadow in the Finnish society. A special atten-tion is given into elder abuse at historical time, as even today, according to the World Health Organization (WHO) every sixth over 60-years or older have been subject to some sort of elder abuse.

**66. FAITH OF THE FINNISH TROOPS OF THE FINNISH WAR IN THE WESTERN BORDER REGION OF SOUTHERN LAPLAND**

**Contribution format:** Poster  
**Contribution authors:** Tiina Väre (Laboratory of Chronology, Finnish Museum of Natural History, University of Helsinki | Archaeology, University of Oulu) – Sanna Lipkin (Archaeology, University of Oulu) – Laura Arppe (Laboratory of Chronology, Finnish Museum of Natural History, University of Helsinki)

We analyzed the δ13C- and δ15N-values of a young soldier of the Finnish War fought between Sweden and Russia as a part of the Napoleonic wars in the early 19th century. Their remains were either buried or secondarily disposed of with those of several others some kilometers from the town of Oulu. He presumably succumbed in late November 1808 while retreating from the town toward the northern border region, as obliged by the terms of an armistice settled earlier in the fall. The δ-values of recently grown hair keratin and gradually remodeled bone collagen, representing different periods during this individual’s life, were compared to investigate the influence of wartime on their diet and/or health. The war for this young man ended just north of Oulu, but many others continued a long walk northward in the winter’s coldness, dressed in ragged uniforms, sick, hungry, and

tired. A couple of hundred men never made the journey, and once the rest had settled around the border region, the accommodations were substandard. Epidemics that had already troubled both armies now fueled into full rage. Mortality among both the Finnish troops unable to continue to the Swedish side of the border and the local people increased regionally into a crisis of the century. Several mass graves now serve as a memorial of the events. We explore the impact of the hardship on emotional sensitivity among the residents who – after the supply lines and maintenance of the Swedish army failed – had to accommodate, care for, and eventually bury the neglected remnants of the Finnish troops. Based on archaeological and historical records, we consider how it felt to be sick and desperate far from home in a strange place or to care for strangers posing a mortal danger to one’s family and the whole community.

**719. ATTITUDE AND FEELINGS TOWARDS LARGE CARNIVORES IN CUCUTENI – TRYPILLIA CULTURE**

**Contribution format:** Poster  
**Contribution authors:** George Bodi (Institute of Archaeology, Romanian Academy, Iași Branch) – Loredana Solcan (Moldova’s History Museum, “Moldova” National Museum Complex)

The Cucuteni-Trypillia civilization developed in Eastern Europe approximately between the Vth and the IIIrd millennium BC, covering parts of Romania, Republic of Moldova and Ukraine. In the final stage of evolution (Cucuteni B/ Trypillia CI), some ceramic vessels are decorated with images of predatory animals. The main-stream interpretation of these images associates them with cosmogonic myths and presumed ancient deities. Our study adopts a phenomenological approach and, while we do not deny the possibility of these images being symbols for more complex religious concepts, we consider them first and foremost expressions of emotions that may, subsequently, be rationalized and dealt with through their incorporation into a religious system. In order to infer the emotional charge of Chalcolithic predatory animals representations, we will conduct an automatic sentiment analysis on ancient texts (Sumerian literature, Vedic texts, and Pyramid Texts from the Old Kingdom). We will use a simple “bag of words” approach and already existing sentiment lexicons and run our analysis on two levels: contextual assessment of sentiments at text level, and evaluation of direct determinants (attributes). This method will help us put forward a new manner of constructing speculative theories of the Cucuteni-Trypillia population’s attitude and perception of predatory animals.

**135 SHAPING TECHNO-TRADITIONS AT THE EMERGENCE OF THE NEOLITHIC BETWEEN SW ASIA AND CENTRAL EUROPE**

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** Neolithic, Farming, Technology, Tradition, SW Asia, Balkans  
**Session organisers:** Bogdana Milic (Spanish National Research Council (IMF-CSIC)) – Michael Brandl – Sonja Kačar (Austrian Archaeological Institute, Austrian Academy of Sciences) – Clare Burke (Department of Archaeology, University of York) – Emma Baysal (Department of Archaeology, Bilkent University)

**SESSION ABSTRACT**

This session explores the dynamics of technological change and the shaping of traditions in Early Neolithic commu-nities across the vast region between Southwest Asia and Central Europe between the 10th and 6th mill. BC. It aims to investigate how technological practices evolved in response to local developments, external influences, the spread of innovations, and shifting socio-economic contexts at the emergence of agriculture. By examining these factors, the session highlights the diverse ways communities engaged with and adapted to their environ-ments. As communities across Upper Mesopotamia, the Levant, Anatolia, Aegean, Balkans and Central Europe transitioned to agriculture, they developed a mosaic of lifeways. These ranged from fully domesticated econo-mies to hybrid strategies integrating hunting, gathering, and managing wild resources. We aim to discuss how technological traditions were shaped within these varied contexts based on their cultural affinities, and therefore call for contributions to address the topic from the perspective of different materials, including lithics, pottery, bone, personal ornaments, building techniques, among others. Themes include the mechanisms of technolog-ical transmission, the influence of innovations on reshaping traditional practices, the impact of inter-regional interactions on technological developments, and the resilience of communities in maintaining and adapting their technological traditions amidst cultural and environmental challenges. We welcome presentations that explore how early Neolithic groups balanced new agricultural practices with established methods of resource acquisi-tion, revealing the socio-cultural and ecological factors that guided their technological choices. By highlighting case studies and patterns of change, the session seeks to uncover the varied and dynamic nature of techno-cul-tural landscapes during this period, illustrating that technological adaptations were diverse, flexible, and deeply



interconnected with broader economic, social and ideological systems.

CONTRIBUTION ABSTRACTS

748. LOCAL DEVELOPMENTS IN FLOOR AND ROOFING TECHNOLOGIES AT THE EARLY SEDENTARY VILLAGE OF BONCUKLU, CENTRAL ANATOLIA

**Contribution format:** Oral  
**Contribution authors:** Aroa Garcia-Suarez (Spanish National Research Council) – Mónica Alonso Eguiluz – Yannick Devos – Luc Vrydaghs (Vrije Universiteit Brussel) – Douglas Baird (University of Liverpool)

Architectural surfaces are both a reflection of cultural traditions and technological choices, and a scenario for the representation of social roles and identities. At the onset of sedentary life, extensive processes of transformation in the economic, social and symbolic spheres of human groups permeated architectural manifestations through time, resulting in a complex interplay of continuity and change in traditional architectural practices. This research focuses on the high-resolution examination of floor and roofing technologies at the early sedentary village of Boncuklu (ca. 8,400-7,800 cal BC), in Central Anatolia. The microscopic study of undisturbed stratigraphic sequences of living surfaces, accumulated domestic residues and collapsed roofing has allowed the identification of local developments in floor materials, maintenance practices and techno-cultural transmissions throughout the Neolithic occupation of the settlement. Surfaces in the earliest buildings display build-ups of fuel-rake-outs formed by highly fragmented charred plant fragments and phytoliths compacted under vegetal platforms overlaid by a cover of grasses. Later buildings are characterised by a marked division of domestic space into dirty and clean areas, the latter manifested as carefully prepared marl plasters whose maintenance varied significantly between households. Deposits of collapsed roofing have revealed a construction recipe that combined calcareous sediments with grasses and reeds. Results highlight the development of distinctive local building practices as dictated by a complex combination of ecological adaptations and both social and cultural conventions at Boncuklu, with white floor plasters signalling the emergence of highly codified, symbolically-charged building traditions.

209. MAKERS’ INTERACTIONS: CUMULATIVE ACTION, GESTURE AND RECYCLING IN ANATOLIAN EARLY NEOLITHIC ORNAMENTS

**Contribution format:** Oral  
**Contribution authors:** Emma Baysal (Bilkent University)

Wear, recycling and adjustment of ornaments were common in the early Neolithic of western Asia. Sometimes these practices were focused on prolonging ornament use, but in other cases there was an ongoing process of making and transformation. In such a sequence of events, we see the contributions of different ‘makers’ who took part in a communal activity that was temporally and likely spatially diverse. The dynamic nature of these objects throughout their life course makes the use of conventional typologies challenging. This paper takes a detailed look at how the communities of the early Neolithic in southwest Asia engaged with the material objects associated with the human body through long-term relationships as part of the identity making of this transitional period of prehistory. The examples come from the microscopic study of ornaments with prolonged making processes from the early sedentary site of Boncuklu Höyük in central Anatolia. The results of two detailed case studies show the sequence of production/adaptation engagement with the artefacts and track the changing form and aesthetics through their life histories. The artefacts are contextualised within the wider technological practices of the period to think about how aesthetics and value might have been perceived by the early Neolithic communities of Anatolia.

1400. OF CONNECTIVITY AND INDIVIDUALITY: NEOLITHIC GROUPS ACROSS LAKE URMIA BASIN, NW-IRAN

**Contribution format:** Oral  
**Contribution authors:** Judith Thomalsky (German Archaeological Institute)

The process of neolithization in the Iranian highlands appears highly heterogeneous. While the intramountainous valleys of the Zagros and its fringes count as one of the domestication centers and thus one center of neolithization in the world, wide parts of the Central Plateau remained virtually untouched by this new lifestyle for more than 2000 years. This “data gap” is commonly explained by possible external factors, such as insufficient environments for plant/animal management, or geomorphological factors (such as heavy sedimentation) that may have blurred the actual archaeological record. But also other factors can be considered between the two “extremes” of “positive” and “negative” evidence. As a case study, this contribution will present new investigations on neolithization processes in NW-Iran. The Lake Urmia Basin in NW Iran, appears so far as a region where “neolithic techniques” likewise occurred suddenly and in form of a fully developed package at the transition

of the 7th-6th mill. BCE. Before this time horizon, it is commonly presumed, the region was not sustainable for the “new economy” (plant cultivation). Our new research instead lets us describe a patchwork of highly-adaptive socio-economical strategies, clearly not matching the common concept of sudden appearance and rapid diffusion of a “package”. Specific aspects of behaviour and materiality point to SE-Anatolia, the Upper Euphrates region as well as to S-Caucasian Neolithic groups and the Northern Iranian Plateau describes different social and technological backgrounds, which can be disentangled by a socio-cultural conception of simultaneous connectivity and individuality.

2315. BROKEN PATTERNS AND COMMON THREADS - LITHIC TECHNOLOGIES AT THE ONSET OF THE NEOLITHIC FROM THE FERTILE CRESCENT TO BALKANS

**Contribution format:** Oral  
**Contribution authors:** Bogdana Milic (Spanish National Research Council (CSIC)) – Michael Brandl (Austrian Archaeological Institute (ÖAI))

The emergence of Neolithic lifeways between Southwest Asia and the Central Balkans (10th–6th millennium BC) unfolded across diverse environmental and cultural landscapes, shaping distinct technological traditions. Given this vast geographic and ecological diversity, variability in lithic production is expected. However, can we identify common technological responses among these regions—Zagros, Levant, Anatolia, Aegean, and the Central Balkans—as early farming communities adapted to socio-economic transformations? Were there shared approaches in blade-making techniques, skill transmission, or raw material preferences that reflect broader cultural behaviours linked to the onset of the Neolithic? While agriculture provides a common backdrop, its adoption and spread followed distinct regional trajectories. The Neolithic took root in the Fertile Crescent through independent developments, while its westward expansion introduced new contexts for adaptation. Declining reliance on hunting and new harvesting practices significantly shaped lithic production patterns. To explore these dynamics, we examine production techniques, innovation, skill transmission, and the degree to which communities engaged with or remained isolated from broader technological developments and exchange networks. We also acknowledge Epipaleolithic and Mesolithic influences, given the fragmentary nature of pre-Neolithic evidence, which often leads to broad cultural assumptions from isolated cases. Neolithic communities developed different procurement and consumption strategies, often involving huge amounts of exotic material despite distances. Across this vast area, materials such as Anatolian, Melian, or Carpathian obsidian, Balkan flint, and Levantine purple flint were consistently integrated into lithic economies, raising questions about long-distance connections and persistent preferences for non-local resources despite abundant local alternatives. This challenges assumptions of a shared Neolithic model, highlighting the role of raw material constraints, cultural traditions, and environmental factors in shaping distinct local responses. Finally, we critically challenge simplified models that emphasize uniformity while overlooking how local traditions, resilience, and cultural affinities shaped Early Neolithic identities.

1182. TRACING PATTERNS OF INNOVATION AND TRADITION. A COMPARATIVE STUDY OF NEOLITHIC STAMPS FROM THE BALKANS TO ANATOLIA

**Contribution format:** Oral  
**Contribution authors:** Elisabeth Weissensteiner – Barbara Horejs (Austrian Academy of Sciences | University of Vienna)

Neolithic stamps, also known as pintaderas, are small objects decorated with geometric designs, most commonly crafted from fired clay. Found across sites in Southeast Europe and Southwest Asia, they were likely used to repeatedly apply motifs by printing or impressing on surfaces. Their precise function remains enigmatic, as the archaeological record lacks direct evidence of their use. However, their presence across diverse Neolithic communities suggests they were part of shared technological traditions, connecting early farmers across ever-expanding networks. Examining patterns of uniformity and variance in their production, distribution, and iconography offers insights into how these traditions evolved within distinct cultural contexts and across regions. Data collected from stamps recovered at Early and Middle Neolithic sites throughout the Balkans and Anatolia serves as the foundation of this study. Building on the crucial insights gained from decades of regional studies, this study synthesises regional research into a broader analytical framework. Statistical analyses reveal spatiotemporal patterns, motif variability, and potential functions, facilitating the evaluation of hypotheses on stamp use. A case study of stamps from Svinjarička Čuka (Serbia) integrates site-specific data with macro-scale patterns, offering deeper insights into their role in Neolithic communities. Combining quantitative analysis with qualitative interpretation, this study aims to re-examine the role and significance of Neolithic stamps as both material and visual artefacts embedded within social and symbolic networks. Contextualising the objects within extensive techno-cultural landscapes sheds new light on how communities negotiated innovation and tradition in their engagement with material culture.



771. WHOSE BOUNDARY IS IT ANYWAY? CRAFTING CHOICES, TECHNIQUES, AND CONNECTIVITY OF NEOLITHIC POTTERS IN NORTH MACEDONIA

**Contribution format:** Oral  
**Contribution authors:** Clare Burke (Dept. of Archaeology, University of York) – Elen. Stojanova Kanzurova – Ljilja Shalamanov Korobar (Archaeological Museum of Republic of North Macedonia) – Zoran Rujak (The National Institution - Institute for Protection of Cultural Monuments and Museum in Strumica) – Pero Sinadinovski (Archaeological Museum of Republic of North Macedonia) – Darko Stojanovski (Dept. of Prehistory and WANA archaeology, Austrian Archaeological Institute) – Blagoja Kitanovski (Archaeological Museum of Republic of North Macedonia)

North Macedonia is an important region for understanding the spread and cultural expression of agricultural groups during the Neolithic. It lies at a crucial intersection, linking pioneer regions in Anatolia and the Aegean with those in Southern and Central Europe, including the significant Vardar-Morava River valleys which likely played a vital role in facilitating the movement of people across these areas. Archaeological evidence reveals the establishment of early settlements across various Macedonian regions by agricultural groups, with pottery assemblages displaying distinct typological and stylistic features that suggest specific cultural and chronological boundaries. However, there is a lack of detailed information on the techniques and materials used in pottery production—key aspects of learned behaviour that could offer critical insights into the spatial and chronological distribution trends of major pottery types, their relationship to cultural identity and the transmission of technological knowledge. This paper will present results of an integrated analytical programme utilising traditional typological and macroscopic methods with thin section petrography and SEM-EDS, to investigate pottery from six Macedonian sites. Utilising the conceptual frameworks of habitus and the chaîne opératoire we have been able to reconstruct the sequence of choices and practices utilised by Neolithic potters in different areas for a variety of pottery types including painted, monochrome, and incised/impresso wares. The findings demonstrate the use of primarily local raw materials in the production of pottery, with notable variations in material manipulation, alongside differences in the quality and craftsmanship of the vessels produced. However, local production also includes technical concepts shared at different sites, as well as with neighbouring regions and cultural groups such as those in Serbia, Bulgaria, and Anatolia, testifying to a wide distribution for some aspects of potting knowledge and practice.

336. EARLY NEOLITHIC TEXTILE CRAFT AT A CROSSROADS? THE STATE OF RESEARCH IN NORTH-WESTERN GREECE AND THE CASE OF MAVROPIGI, KOZANI

**Contribution format:** Oral  
**Contribution authors:** Sophia Vakirtzi (Hellenic Ministry of Culture)

The region of northwestern Greece, specifically the administrative district of Western Macedonia, is an area of a relatively dense concentration of Early Neolithic sites. As early as the 1960s, the results of the excavation at the site of Nea Nikomedeia prompted the discussion of textile production in the Early Neolithic based on artefacts that were interpreted as textile tools. Since then, the excavation of more sites in the region, dating to this chronological horizon, has enriched the archaeological record with potential evidence of textile craft. In this presentation, an overview of the state of research on the textile craft in Early Neolithic northwestern Greece will be provided, focusing on the case of Mavropigi. This site, located near the lignite mines in the region of Kozani, underwent a rescue excavation over a period of two years (2005-2006). It was radiocarbon-dated to the second half of the 7th millennium BCE. Excavators have recognized three, main phases of occupation before the abandonment of the settlement. Artefacts such as rounded, centrally pierced potsherds and clay, unpierced spools were collected from different loci of the excavated area and are studied as potential textile tools. The paper will present the preliminary results of this study and will discuss the problem of identifying textile tools in the context of the Early Neolithic. The aim of this presentation is to contribute to the research on the networks of interaction in textile technology between the Balkans, the Aegean, and Western Anatolia in the Early Neolithic.

506. THE LATE NEOLITHIC DISPILIO LOOM WEIGHTS: AN EARLY FORM OF PIRIFORM WEIGHTS IN NORTHWESTERN MACEDONIA

**Contribution format:** Oral  
**Contribution authors:** Gerasimoula Ioanna Nikolovieni (Brown University)

The Neolithic lakeside settlement of Dispilio is located in Northwestern modern-day Greece at the southern part of Kastoria Lake about 7km south of the modern Kastoria city. Long-term excavations at the site have yielded numerous buildings and a rich variety of finds. The ongoing textile tools research of the site has highlighted an assemblage of textile tools in the West sector. This paper will present the archaeological assemblage of piriform loom weights found in the Final Neolithic Building 12 of the site. The presence of piriform or other types of loom

weights in Neolithic Greek settlements is uncommon and under question. Therefore, this assemblage gives us the opportunity to research the functional characteristics of this typological category and ask questions about the technology of the loom they accompanied in the particular building. Furthermore, the study of this assemblage will enable investigating the relations of the settlement’s textile technology with neighboring areas.

16. INVESTIGATING THE APPEARANCE OF PIRIFORM LOOM WEIGHTS IN NORTHERN ITALY BETWEEN THE LATE NEOLITHIC AND THE EARLY BRONZE AGE

**Contribution format:** Oral  
**Contribution authors:** Maria Elena Bertoli (School of Humanities, University of Glasgow)

Some of the earliest evidence of textile production in northern Italy comes from the Late Neolithic (c.4000-3500 BCE) pile dwelling sites. The pile dwellings have produced some of the most important archaeological evidence of textile and fibre production and use during European prehistory since their waterlogged conditions preserve organic matter, such as textiles, balls of yarn, cords, and baskets. In the Late Neolithic pile dwelling site of Palù di Livenza (Friuli region) in North-Eastern Italy, evidence of textile production, consisting of clay spindle whorls and loom weights, was found. The earliest fabrics in Northern Italy have been recovered from the Late Neolithic settlement of Lagozza di Besnate (Lombardy region), where a small fragment of weft-twined structure was recovered. The evidence of textile production increases significantly with the beginning of the Early Bronze Age (c.2200-1600 BCE). The Early Bronze Age pile dwellings located in the area around Lake Garda, such as Lucone di Polpenazze (Brescia) and Bande di Cavriana (Mantua), have provided important evidence of spinning and weaving activities. This paper will present a comprehensive study of the piriform loom weights found between the Late Neolithic and the Early Bronze Age in the pile dwellings of northern Italy. These weights are characterised by an ovoid shape, with a single transverse hole towards the top. This typology can be linked to the European Late Neolithic tradition. Already in the advanced stages of the Early Bronze Age, piriform loom weights were replaced by ring-shaped or cylindrical weights with a large central hole, which became widespread in the Middle and Late Bronze Age.

1337. INNOVATIONS IN THE BONE INDUSTRIES: SPATULA-SPOONS IN THE EARLY NEOLITHIC BALKANS

**Contribution format:** Poster  
**Contribution authors:** Selena Vitezovic (Institute of Archaeology, Belgrade)

The introduction of the so-called “Neolithic way of life” not only brought in new technologies, but had great impact on the pre-existing ones. In case of bone industries, these innovations included new raw materials (switch from bones from wild species to the domestic animals), new manufacturing procedures (directly linked with changes in lithic industries), and new techno-types, needed for changes in economy and life styles (introduction of agricultural implements, increased needs for tools for small crafts, etc.). Some of the new techno-types in the Early Neolithic in the Balkans are considered as direct influence from the south-west Asia. The most prominent techno-type is the bone spatula-spoon, with elongated handle and elaborated bowl. These objects were carefully crafted from entire metapodial bones through several stages of cutting, scraping, grinding and burnishing. Some of them may even have decoration on them. While Anatolian examples were predominantly or perhaps exclusively made from metapodial bones of Bos primigenius, in the Balkan area Bos taurus bones prevailed. Furthermore, these objects were not simply adopted by the Early Neolithic communities in the Balkans, but also underwent come local transformations and adaptations, visible in some of their technological traits, and even more in their mode of use and overall significance. This poster will present comparative results of analyses of spatula-spoons in the eastern and central Balkans and southern Carpathian basin (present-day Bulgaria and Serbia), with focus on changes and transformations of this peculiar techno-type.

2306. BETWEEN TRADITION AND INNOVATION: EARLY NEOLITHIC HARVESTING TECHNIQUES AT CRNO VRILO SITE (DALMATIA, CROATIA)

**Contribution format:** Poster  
**Contribution authors:** Sonja Kacar (Austrian Archaeological Institute/ Austrian Academy of Sciences) – Sylvie Philibert (CNRS, Traces - UMR 5608 )

From the late 7th millennium onwards, the spread of Neolithic lifeways toward the central and western Mediterranean followed a non-linear trajectory, marked by pioneer incursions, pauses, and cultural reconfigurations. In this context, the Balkan Peninsula and the Adriatic—where technical systems transformed—represent a key region for understanding Neolithic trajectories. Crno Vriilo, a central-eastern Adriatic site in the Zadar hinterland, provides remarkable evidence of the first agro-pastoral communities of the Impressed Ware tradition. Excavated in the early 2000s by Brunislav Marijanović (University of Zadar), it revealed rectangular houses, pathways, and a rich material culture, attesting to a well-structured village (c. 5800–5600 cal BC). Among its finds, the lithic assemblage—over 4000 well-preserved artefacts—constitutes the largest Early Neolithic collection from



littoral Croatia, offering unique insights into domestic lithic production and use. Technological and functional analyses highlight tool maintenance strategies, subsistence activities, and blank selection. Lithic production at Crno Vrilo is characterized by pressure blade flaking on high-quality exogenous cherts (sourced from the Gargano Peninsula, Italy), reflecting significant socio-economic and technical investment. These blades were used both unretouched and modified into diverse tools, including sickle elements, indicating that cereal cultivation played a central role. Symmetrical trapezoidal armatures show projectile impact and evidence of recycling, while large blades, likely produced by lever pressure and imported as finished products, served various functions except for harvesting. Within this presentation, we aim to explore the Crno Vrilo technological system in its domestic context and position it within a broader perspective on Neolithisation processes in the central-western Mediterranean and the Balkans.

136 AURAL AND VISUAL INTERACTIONS IN MEDIEVAL AND EARLY MODERN SOURCES: INTERDISCIPLINARY PERSPECTIVES ON THE ARCHAEOLOGY OF SOUND

Session theme: 2. Intertwined Epistemologies: Transcending the Data – Theory Divide  
Session format: Regular session  
Session keywords: visual and written culture, medieval and early modern sources , archaeoacoustics, archaeology of sound, interdisciplinary approaches, soundscape  
Session organisers: Zorana Đorđević (Departament de Història i Arqueologia, Universitat de Barcelona | Institut d'Arqueologia UB (IAUB), Barcelona) – Tin Cugelj (International Musicological Society Study Group Auditory History)

SESSION ABSTRACT

The archaeology of sound is an interdisciplinary field connecting archaeology, musicology, art history, architecture, literary studies, and acoustics. Traditionally, archaeoacoustic research has focused on using acoustic techniques to examine the auditory properties of historical spaces. However, the visual and textual representations of sound—indoors within sacred spaces and outdoors, where landscape features shape soundscapes—have often been overlooked. This session seeks to bring renewed attention to how sound and music were depicted in medieval and early modern iconography and written sources across various cultures and how these depictions might inform archaeoacoustic research. The session invites discussions on the portrayal of sound in medieval and early modern visual and written culture, asking questions such as: How was sound visually represented in art and iconography? How did the people of the past describe their auditory experiences? How can these sources enrich contemporary archaeoacoustic studies, and conversely, how can archaeoacoustics enhance our understanding of medieval and early modern visual and literary sources. We encourage scholars to present research that integrates the acoustics of spaces with the visual representation of sound, providing a comprehensive approach to understanding historical auditory environments. In particular, we welcome contributions that explore the interplay between aural experiences and visual elements, including architecture, religious artifacts, and illuminated manuscripts. This session will offer an interdisciplinary platform for scholars to delve into the sensory experience of sound in the medieval and early modern periods, aiming to deepen our knowledge of the historical, cultural, and sensory roles of music and sound. This session, organized by the CULT-AURAL project, is open to researchers worldwide from diverse scientific disciplines focusing on medieval and early modern cultural contexts. Selected papers will be considered for a special issue in a peer-reviewed journal, offering further opportunities for scholarly exchange and publication.

CONTRIBUTION ABSTRACTS

2463. VISUAL REPRESENTATION OF SOUND IN TREATISES

Contribution format: Oral  
Contribution authors: Jean-Christophe Valiere (Institut Pprime, CNRS UP 3346, Université de Poitiers)

The basic characteristics of sound waves have been defined since ancient times. Chrissippus (280 BC) postulated that the undulating nature of these waves was comparable to waves on the surface of water, while Aristotle (384 BC) established the principles of the directionality of waves by comparing them to the way a ball bounces, like rays of light. Epicurus (300 BC) added the need for a material support for this propagation to take place. Vitruvius (80 BC) took up the theories of the Greek philosophers and added that waves propagate in degrees, i.e. in three dimensions, unlike surface waves which propagate in two dimensions only. It should be noted that many drawings have unfortunately disappeared, such as the plates of Vitruvius. Nevertheless, the theories of antiquity persisted into the Renaissance and modern times, as can be seen from the treatises of Marin Mersenne (1588-1648) and

Anasthasius Kircher (1602-1680), which include drawings illustrating their vision of acoustic principles. It is worth noting that the Aristotelian approach, which we would now call ray theory, is the only one that is used and seems to work. Although it can explain certain focusing effects, it cannot describe the complex effects of acoustics such as spectral changes or reverberation. These, however, have long been known empirically. It was not until the end of the nineteenth century, and especially in the twentieth century, that all these approaches were reconciled.

1912. RESONATING IMAGES: THE ROLE OF CERAMIC POTS IN THE SOUNDSCAPE AND VISUAL AESTHETICS OF ST. GEORGE AT STARO NAGORIČINO

Contribution format: Oral  
Contribution authors: Jasmina Ciric (University of Kragujevac Faculty of Philology and Arts)

This paper explores the dual role of the ceramic pots embedded in the façades of the Church of St. George in Staro Nagoričino (1317/18). Traditionally, these pots have been believed to serve an acoustic function, contributing to the church's acoustics during liturgical performances. However, their primary role is visual, serving to accentuate the architectural and auditory potential of the interior space. The façade's brickwork mirrors the interior message conveyed through the monumental frescoes, particularly the Mocking of Christ fresco on the northern wall, which features musicians with wind and percussion instruments. This inclusion hints at a performative or liturgical soundscape. The study examines whether the ceramic pots, embedded in the northern and southern façades, are strategically positioned not only to enhance sound but also to visually emphasize the church's acoustic potential. By analyzing the spatial layout and the integration of resonators within the context of the frescoes, this paper interrogates the intentional role of sound in the church's design. This approach situates the study within a broader interdisciplinary framework that combines archaeoacoustic research with art historical analysis. Ultimately, the paper seeks to deepen our understanding of how the Church of St. George at Staro Nagoričino, as one of the prominent endowments of King Milutin (1282-1321), engages with both sound and visual art, creating an immersive sacred experience. By considering the interplay between visual decoration and acoustic resonance, this research contributes to the broader field of sacred architecture and performance, shedding light on the sensory dimensions of medieval religious spaces.

689. THE SOLDIER-PRIEST AND HIS GILDED HARP: GLEANINGS ABOUT THE HARP IN 16TH-CENTURY SPANISH AMERICA

Contribution format: Oral  
Contribution authors: Egberto Bermudez (Universidad Nacional de Colombia, Bogotá)

In 1578 a ‘gilded harp’ was sold in Santafé (present day Bogotá, Colombia) and purchased by Antonio de Sequeira, a Portuguese adventurer who had served as soldier against French and English pirate attacks in Cartagena and Riohacha (Northern Coast of Colombia) and who, having become a priest around 1575, was acting as such in Ibagué (150 km east of Bogotá) a commercial entrepot between the territories of present-day Colombia, Ecuador and Peru. In the very few existing documents about him, Sequeira is praised for teaching music and the playing of instruments to the local youth, those instruments include keyboard ones and possible the harp. Through historical, organological and iconographic evidence, this paper examines what kind of harp could have been the one he purchased in 1578, its construction, sound and playing techniques. It also attempts at placing this instrument and its music in the context of Spanish colonization and Christianization of Amerindian and African populations, marked by competition, confrontation and violence in a period of growing economic and political globalization.

541. THE PORTRAYAL OF SOUND IN 14TH CENTURY “LA DIVINA COMMEDIA” BY DANTE ALIGHIERI

Contribution format: Oral  
Contribution authors: Eva Gjorgjievska (Goce Delcev University)

Apart from being an exemplary medieval and religious poet, the literary tradition recognizes in Dante Alighieri a guardian of the rich treasury of the Italian language, a moralist, a traditionalist, a committed poet who sings about his Florence ... But Dante’s “Divine Comedy” can also be read through the sensorial discursiveness of the text, which, by evocation of sounds, smells, and colors, makes him alluring, despite the frequent hermeticity or elitism of its expression. In this article, we will specifically explore the evocation of sound, in combination with color, gustatory metaphors, olfactory sensations, tactile perceptions and, in general, the emotional character of the poetic text, in order to compare all aspects of the sensation that Dante’s poetics presents. The sounds in the poetic text change gradually as Dante passes through Hell, Purgatory and Paradise and are associated with differently intonated images and stories. On the one hand, the strong suggestiveness of poetic expression will be considered through the investment of sensory perceptions in the text (sounds, smells, sights, ...), and on the other hand, the poetic figures that emphasize the imaginary activation in the reading process will be considered (synesthesia, allegory, onomatopoeia, etc.). We can conclude that in the “Divine Comedy”, what Virgil is for Dante, is Dante for the reader, that is, a guide through the three spheres of the otherworldly, or a guide in a cathartic



experience that aims to bring him out purified and renewed. We are talking about a strong involvement of the reader in the text by processing the sensory experiences through the figures of speech, which in turn are transformed into poetic experiences.

1977. SILENT NARRATIVES: SILENCE AS A METHODOLOGICAL TOOL IN SOUND STUDIES RESEARCH

Contribution format: Oral  
Contribution authors: Tin Cugelj (University of Nottingham | IMS Study Group Auditory History)

In researching historical sounds, auditory environments, and sonic events, the sound itself foregrounds as the main object of historical research. Encoded within narratives as a relic of written sensory culture, within music as a symbol of ordered sound, or on records and tapes in their true, yet altered form, the variety of recorded sounds reveals much about the sound itself, communities centred around it, its listeners, and, ultimately, its creators. However, with such prioritisation of the “audible past”, there is a concurrent, often unintentional creation of a variation of the confirmation bias that privileges audible or documented sounds over silences and the “unheard”, stemming from several intertwined factors such as archival priorities, technological limitations, cultural concep-tions of relevance, scholarly focus on the discursive, and power dynamics. Drawing on the interdisciplinary scholarship from cultural history, auditory history, and sound studies, and featuring a curated selection of primary sources (courtesy treatises, diary entries, iconography, music), this paper focuses on foregrounding silence as an active cultural signifier and a critical tool in the investigations of the sonic past. It asks and tries to answer several questions: what can silence tell us about past communities, their habits, and their preferences? How does silence encapsulate cultural values, and how are these expressed? Can silence, ultimately, be heard in the histor-ical research. Through recognising silence(s) as valuable data, expanding the archives, and an interdisciplinary approach to sound history, we can foreground silence as a methodological tool for the spaces of the past. In that way, this paper will challenge sonocentrism and the acoustemological approach and explore the possibilities of the novel “silence as a method” approach that could unearth new analyses and interpretations of the past, and yet unheard sonic narratives.

1314. THE THEOTOKOS AND THE \*AXION ESTIN\*: FRENCH TRAVELERS’ PERCEPTIONS OF MARIAN DEVOTION ON MOUNT ATHOS (16TH–20TH CENTURIES)

Contribution format: Oral  
Contribution authors: Jean-Michel Sourd (Independent Researcher | Alma Mater Studiorum University of Bologna)

This study examines the impressions of French-speaking travelers—including pilgrims, scholars, artists, and diplomats—regarding Marian spirituality on Mount Athos, focusing on the veneration of the Theotokos (Mother of God) and the \*Axion Estin\*, a foundational Orthodox hymn tied to a 10th-century Marian apparition. Spanning the 16th to 20th centuries, the analysis draws on a corpus of understudied narratives, from Pierre Belon du Mans (botanist to François I) to 19th-century luminaries like Chateaubriand, Lamartine, and Pierre Loti, as well as lesser-known accounts by missionaries or ecclesiastic. (Placide De Meester, Stanislas Neyrat) and scholars (Victor Langlois, Amand de Mendieta). The paper unfolds in three stages. First, it maps travelers’ documentation of Athonite frescoes, icons, and liturgical practices linked to the Theotokos, interrogating how Catholic observers interpreted Orthodox rituals (e.g., night liturgies, fasting). Second, it analyzes descriptions of the \*Axion Estin\*’s celebration, probing whether visitors connected its emotional resonance to French Marian traditions (e.g., Notre-Dame de Lourdes) or framed it as exotic. Third, it critiques colonialist and Romantic biases in 19th-century accounts while exploring how travelers mediated Athonite spirituality through their cultural and theological lenses. By intersecting religious history, travel literature, and intercultural studies, this research reveals. 1. Post-revolutionary France’s perception of Athos as a bastion of Orthodox “otherness,. 2. The Theotokos as a symbolic bridge between Catholicism and Orthodoxy. 3. Shifting narratives—from Romantic exoticism to contemporary ecumenical dialogue.

137 BEYOND THE CARTESIAN DIVIDE: ALTERNATIVE ONTOLOGIES IN ARCHAEOLOGICAL EPISTEMOLOGY

Session theme: 2. Intertwined Epistemologies: Transcending the Data – Theory Divide  
Session format: Regular session  
Session keywords: Ontology, Dualism, Materiality, Cognition, Epistemology, Multisensorial  
Session organisers: Michael McCabe – Merlijn Veltman (Leiden University) – Edoardo Vanni (Università per Stranieri di Siena) – Nicky Schreuder (Leiden University)

SESSION ABSTRACT

This session invites papers that re-evaluate the foundational epistemological and ontological assumptions in archaeological practice, particularly those stemming from Enlightenment thinking and Cartesian dualism. Building on (but not limited to) frameworks such as Assemblage theory, Material Engagement Theory, posthu-manism, and relational ontology, we aim to explore alternative models that emphasise materiality, embodiment, and the multisensorial dynamics of human-object interactions. These paradigms offer archaeologists innovative tools for interpreting artefacts, fostering interdisciplinary dialogue, and reassessing traditional approaches such as Style, Typology, Diffusionism, Dualistic constructs (Nature/Culture, Mind/Body), Site-Centric Analysis, and Linear Progression Models. Contributions are encouraged that challenge traditional classifications in material culture studies, moving beyond nationalist and ethno-cultural narratives toward non-dualistic epistemologies that foreground new perspectives on human-nonhuman relationships, artisan agency, and environmental influ-ences on material culture. Through these discussions, we seek to critique the legacy of Enlightenment biases in archaeology and open avenues for a more holistic and integrative understanding of the past. Papers are welcome on broadly applicable case studies, such as the transmission of craft knowledge, the social lives of artifacts, ritual practices, or the impact of environmental conditions on material production and use; as well as theoretical contri-butions tackling ontological or epistemological shortcomings within the field. Submissions employing innovative methods—such as sensory analysis, XRF analysis, experimental archaeology, and interdisciplinary approaches to memory and temporality—are also encouraged. The goal is to create a platform for dialogue that reimagines the boundaries of archaeological knowledge, fostering reflexive, integrative approaches that transcend dualistic thinking and promote a more inclusive, dynamic understanding of archaeology.

CONTRIBUTION ABSTRACTS

481. ART AS COGNITION: CONSIDERATIONS ON THE ENGAGEMENT OF MIND, BODY AND ART IN BUILD-ING THE WORLD OF (LATE) REPUBLICAN ROME

Contribution format: Oral  
Contribution authors: Nicky Schreuder (Leiden University)

Especially during the last decade, stimulating perspectives have been explored concerning the fundamental relationality of cognition and material culture. In such an understanding, tools, artefacts and the environment are all constituent in the creation of knowledge and our becoming – our cognition. Artistic expressions such as painting or statuary are much less taken into account, with some notable exceptions made for prehistoric craft. This paper will therefore specifically examine the role of art of a later period to explore how such approaches might be fruitfully applied to a widening scope of material sources. The aim is to help further understand the role of non-humans in cognitive processes and matters of social-cultural becoming and change. Specifically, first century BCE domestic wall paintings from Pompeii and its environs are chosen to consider their role as cogni-tive extensions in the rapidly changing society of late Republican Rome. Much scholarship on Pompeian frescoes has focused on semiotic approaches and interpretations leading to connections to social status. As such, the fres-coes are generally understood as representational manifestations of power; the embodiment of values, or they are assumed to have provided fitting backdrops for certain social actions in the space they adorn. The frescoes are read and deciphered on the basis of what the image show: the matter is passively imbued with predefined meaning. But by approaching the paintings as part of (extended) cognition, I contend that they have been more formative for social action and experiences than often assumed, and that art is as much an expression of the mind while also being an integral part of it. Art, then, acts together with other bodies to create the perceived world.

626. HEART[AND MIND]-IN-HAND. EMOTION IN EVOLUTION OF MIND: EMERGENCE OF THE ‘SUPERNATURAL’ IN THE EUROPEAN PALEOLITHIC

Contribution format: Oral  
Contribution authors: Mathew Burnett (Center for Cognitive Archaeology (UCCS) | University of Colorado at Colorado Springs)

Most of us would admit that our emotions permeate our existence on the planet; they did also, we can assume, for our hominin ancestors. I utilize Material Engagement Theory (MET), Extended Emotion Theory (ExE), and cutting-edge affective neuroscience to assemble archaeological evidence into a story of emergence, within the caves of the European paleolithic, of the earliest cognitive ancestor of the ‘supernatural’ concept and, thus, religiosity; it’s a story that starts with a subtle but persistent hominin emotional response to what might seem an innocuous item of cave art, the hand stencil. I first complete two critical tasks in setting the stage. The first is flipping the common ExE ontology on its head (or, rather, into reverse) – that is, before using emotions to make ‘sense’ of the world (the standard notion), I suggest that we must first use the world to make ‘sense’ of our emotions. The second is dismantling David Lewis-Williams’ “shamanic” explanation of the emergence of the ‘supernatural’ concept in



the European paleolithic, as his account has long held a strong (but not strongly defensible) explanatory grip on this topic. I then proceed with a story of recursive engagement of body, brain, emotion, and the material world (i.e. the ‘affective cognitive ecology’), tracing the hand stencil’s significance in the material record from accidental discovery, to enactive material ‘beacon proto-sign,’ to ‘fetishized sign,’ to composite component in Europe’s first proto-therianthropic image and then, finally, to projected metaphor in the fantastical integral therianthrope ‘sorcerer’ paintings of Trois Freres; thus, also, in the process, the birth of the concept of ‘supernatural’ in the mind of the paleolithic hominin, precursor to full religiosity.

**1132. SHAPES AS A DRIVING FORCE IN HUMAN COGNITIVE EVOLUTION: EVOLUTIONARY NEUROBIOARCHAEOLOGY, A CO-TRANSDISCIPLINARY APPROACH**

**Contribution format:** Oral  
**Contribution authors:** Simon Maistriau (Université Libre de Bruxelles) – Michae. Mccabe Iii (Universiteit Leiden)

Human cognitive evolution is intrinsically linked to our engagement with the material world. Challenging traditional dualistic frameworks, I propose that shapes serve as cognitive scaffolds, shaping neural development, perception evolution, knowledge transmission, and the emergence of inventive expression. Evolutionary Neurobioarchaeology, a co-transdisciplinary field, integrates archaeological data, neurobiological mechanisms, and epigenetic processes to examine how natural shapes influence human cognitive evolution. This approach demands an epistemological shift and the dismantling of traditional disciplinary boundaries, fostering researcher-driven inquiry and collaboration both within and across research teams. The theoretical framework emphasises the significance of natural and environmental shapes, proposing that the inherent forms of the natural world, ranging from the curve of a riverbed to the fractal patterns of a tree, play a fundamental role in spatial cognition and learning, as well as the neuronal organisation. The present study aims to analyse the interaction between the morphology of artefacts, neural plasticity and the intergenerational transmission of epigenetic modifications playing a role in the human cognitive evolution. This analysis will seek to uncover the profound entanglement of human cognition with the material world, thereby challenging the duality put forward by Material Engagement Theory and Neuroarchaeology. Furthermore, Evolutionary Neurobioarchaeology places significant emphasis on ethical considerations and non-invasive research methodologies. By promoting a conscientious approach to research, this novel discipline seeks to facilitate a more nuanced comprehension of human evolution, emphasising the interconnectedness of humans, other species, and the material world. This co-transdisciplinary approach, integrating innovative methodologies and theoretical frameworks, has implications for understanding the emergence of symbolic thought, technological innovation, and co-evolutionary dynamics between humans and their environment. Ultimately, it proffers a non-dualistic perspective on human evolution, challenging traditional assumptions and promoting a more integrated view of human experience.

**2341. DOES CLAY REMEMBER? EMBODYING CREATIVITY, SENSORY ENGAGEMENT AND TACIT SKILL IN EARLY IRON AGE ETRUSCAN CERAMIC PRODUCTION**

**Contribution format:** Oral  
**Contribution authors:** Michael Mccabe (Leiden University)

This research investigates the role of embodied cognition in shaping ceramic production among Etruscan artisans during the early Iron Age. Focusing on the pivotal study areas of Vetulonia, Poggio Civitate, and Chiusi, the project examines how sensory experiences and tacit expertise inform creative production processes, and it foregrounds the river Ombrone as a dynamic agent that distributes cognition across these regions. Initial analyses reveal that ceramic production was far more than the application of predetermined techniques; it was a continuously evolving dialogue between potters and their materials. Locally sourced clays and tempers responded to the artisans’ tactile manipulations in ways that were deeply attuned to subtle variations in environmental conditions. In this context, the Ombrone effectively extended the cognitive reach of Etruscan artisans. Its influence linked the embodied practices at Vetulonia, Poggio Civitate, and Chiusi, forging connections among embedded repertoires that transcended localised production methods, enriching their material interactions and contributing to an extended cognitive landscape. Crucially, this landscape functioned as both a conduit for innovation and as an entanglement with memory, as artisanal knowledge—embedded in gesture, material affordances, and environmental cues—was preserved and mediated over time. This work foregrounds ceramic production as an adaptive, context-sensitive process. At these sites, artisans drew on immediate, tactile feedback and the inherent properties of their materials, revealing a form of creative cognition that emerges through the relationship between mind, body, tool, and environment. By situating craft practice within its full ecological and embodied context, this study challenges reductionist interpretations of ancient technology and offers a nuanced perspective on the innovative processes underpinning early Iron Age Etruscan ceramic production.

**1002. BEYOND ISOLATIONISM: EXTENDING RELATIONAL ONTOLOGY TO MEMORY BASED ON EARLY BALTIC COUNTING PRACTICES**

**Contribution format:** Oral  
**Contribution authors:** Dominykas Barusevicius (Vilnius University)

This paper extends relational ontology to memory based on a new hypothesis concerning mnemonic techniques—counting in action—in the Eastern Baltic (2nd–1st millennium BC). It is proposed that such isolationist ontologies as Cartesianism and hylomorphism structure subject-object or form-matter as distinct analytical units and binary oppositions. As a result, memory can be defined as a subject’s inner faculty to forget and remember, operating solely via forms—mental representations of past experiences. Although this definition of memory provides a pervasive and fruitful explanation, the process of counting in action suggests otherwise. The hypothesis states that Baltic mnemonic techniques emerged as counting in action, manifesting through gesticulations with small clay figurines. This is supported by evidence of the expansion of Near Eastern counting practices using clay tokens beyond their geographical origins, argued by means of chronological correspondences, analogies between figurines and tokens, indications of cross-cultural exchanges, and an archaeological case found in Lithuania. The Near Eastern counting nature of Baltic clay figurines implies that the gesticulation of figurines served as a form of memorization—recording and tracking quantities of objects in either administrative, vital, or transactional processes. Given that memorization operates through the manipulation of material objects, isolationistic definition that limits memory to human mentality is challenged. Based on these considerations, relational ontology can be extended to memory. By emphasizing mutual engagements between humans and material objects, this perspective suggests that fixed distinctions and mental representations cannot comprehensively determine memory. Depending on various networks of relations, memory emerges in new and ever-changing forms of practical operations. Therefore, this paper not only introduces new archaeological evidence on the emergence of mnemonic techniques in the Eastern Baltic and the expansion of Near Eastern counting practices beyond their geographical borders, but also challenges isolationism and highlights the relational potential of memory.

**1105. TECHNO-POLITICS AND THE SENSORY ORGANISATION OF FORMATIVE POTTERY PRODUCTION IN THE ATACAMA DESERT, CHILE (3000-1000 BP)**

**Contribution format:** Oral  
**Contribution authors:** Claudio Wande – Mauricio Uribe (University of Chile)

Sensory assemblages in archaeology have been recognised for their potential to address the political dimensions of the past. In this work, we propose an intersection of technological studies and a sensory approach to pottery technologies in the Atacama Desert to explore the lived and embodied experiences of the transition to a Formative/Neolithic world. The Formative Period in Tarapaca, northern Chile, has been a key moment for debates on social evolution, complexity, and inequality. Unlike linear, progressive, typological, and economic Neolithic perspectives, current proposals suggest that a cosmological transformation took place, generating new relationships between human groups, non-human agents, raw materials, elements, and resources in the driest desert in the world. A particularly eloquent material manifestation of these transformations was pottery technology. We propose an approach to technology as a set of practices that structure and reproduce social worlds, but also as a stage for intentionalities, tensions, and negotiations. This implies inserting the discussion of technologies into politica. fields. From this techno-political perspective, we explore perceptions and sensory experiences, as they mediate the relationship between actors (artisans) and technological practices. Since what can be perceived, sensed, felt, and practised is structured within specific social, aesthetic and political assemblages, understanding these dimensions is key to comprehending the diversity of actors, their possibilities of action, experiences, and intentionalities within particular socio-political structures. Through traditional ceramic analyses, combined with a visual and tactile sensory approach, our study shows that these ceramic technologies materialise two social strategies practised (closed and open ceramic recipes) to generate ideas and sensations of apparent equality through pottery work. This, in turn, helped reconcile personal and communal experiences, sensations, and perceptions of the transformations and inequalities resulting from the agreements and tensions of living in a newly formed Formative/Neolithic social world.

**750. HOW TO (DIS-)ASSEMBLE YOUR TYPOLOGY: REVISITING THE “DOLPHIN-AMPHORA EARRINGS” FROM FUNERARY CONTEXTS IN CENTRAL ASIA (200 BCE - 100 CE)**

**Contribution format:** Oral  
**Contribution authors:** Merlijn Veltman (Leiden University)

The “dolphin-amphora earrings”, found in funerary contexts in Bactria (Central Asia) from 200 BCE - 100 CE, have traditionally been considered through cultural and processual lenses. They have become part of an archaeological typology, in which they are grouped together on the basis of their morphological features (i.e. an amphora-like body with dolphin handles). This has had major repercussions for their interpretation in funerary contexts.



Invariably, the earrings are placed into representational categories: “Greek” or “elite”. The burials they are found in are interpreted through similar frameworks. However, typologies are only one part of the assemblage that is each distinct “dolphin-amphora earring”. Crucial differences in the form of each dolphin-amphora earring point towards diachronic relations pervading their assemblages. This paper addresses the problematic nature of the restrictive typology imprinted upon these earrings. Using assemblage thought as a theoretical framework, this contribution will revisit the earrings as assemblages, laying bare the multiple-object that is the “dolphin-amphora earring”. From this perspective, novel, diachronic interpretations of the earrings as more-than-representative and more-than-typological emerge that provide invaluable knowledge of the earrings’ funerary context and Bactria as a whole in 200 BCE - 100 CE.

**2296. ARCHAEOLOGY, BIAS, AND THE POLITICS OF THE PAST: UNDEFINING THE DISCIPLINE FOR THE PRESENT**

**Contribution format:** Oral  
**Contribution authors:** Kalani Heinz (California State University, Northridge) – Robyn Price (Brown University)

“Those that fail to learn from history are doomed to repeat it.” - Winston Churchill. This oft repeated assertion, that studying history lets us prepare better for the futures we desire, assumes the existence of a neutral past that all people accept as true, regardless of where they are from or who they are. The past, however, is not an objective reality. Rather, it is a constructed narrative shaped by incomplete datasets, selective interpretations, and the needs or expectations of particular audiences. Archaeologists play a pivotal role in producing these narratives, yet standard methodologies often obscure the biases inherent in interpretation, reinforcing exclusionary and/or reductive views of History. This paper interrogates how lived experience—including trauma, implicit bias, and cultural investment—shapes both the reception and production of historical knowledge, influencing how archaeology is mobilized in the present. By examining case studies such as the misinterpretation of gender/sex in burials or pedagogical interventions that highlight embodied learning, this paper considers how archaeology can move beyond static, materialist frameworks to engage more reflexively with the politics of knowledge production. It argues that archaeology must not only acknowledge its role in shaping modernity but also take responsibility for the repercussions of its narratives, particularly in how they inform contemporary crises. Drawing from relational ontology, ethnic studies, and anti-racist, queer, and trauma-informed approaches, this paper advocates for an archaeology that embraces multivocality, complexity, and plurality. By undefining archaeology—challenging its limits as a discipline concerned only with material traces of the past—we can foreground the co-production of past and present, revealing archaeology as an active, political practice that can foster more honest and inclusive understandings of history. Rather than resisting complexity, archaeology must engage with it, recognizing discomfort as central to reimaging its role in the modern world.

**707. AGENCY, AFFECT, AND AGENCEMENT: KEEPING THE ‘HUMAN’ IN ‘POSTHUMAN’ ARCHAEOLOGY**

**Contribution format:** Oral  
**Contribution authors:** Ewan Coopey (Macquarie University, School of Humanities)

Many critiques levelled against posthumanist and new materialist archaeologies share a concern for the supposed loss of human agency—something only recently brought back into the centre of archaeological interpretation. This is important to address, for, in the face of the various environmental, social, and political crises wracking the world, we cannot afford to work from ontologies which lose sight of the impacts of human action. Equally, though, we must embrace epistemological stances that look beyond the anthropocentric legacy of enlightenment thinking and engage with the more-than-human nature of the past and present. The posthumanist turn, however, is not the ‘end’ of human agency in archaeology, but rather the expansion of our understanding of it and the inextricable more-than-human and material dimensions of its emergence. I argue this by drawing upon tenets of assemblage thinking, such as the core concept of agencement (‘assemblage’) first developed by the philosophers Gilles Deleuze and Felix Guattari, along with other concepts adopted and adapted by contemporary assemblage theorists, such as affect (the capacity to impact and be impacted). These concepts are used to craft a framework which understands agency—and what it means to act—as an immanent capacity that emerges within agencements (heterogeneous arrangements of materials and relations). I then use this framework to unpack the human and more-than-human affects and agencies at play in the creation and dedication of a 1st century CE Romano-Dalmatian funerary stela. In doing so, I demonstrate how posthumanist archaeology can bring us to dynamic reconstructions of past worlds which move beyond the human, without abandoning the capacity for human action.

**738. ALL DESCARTES’ FAULT.DISAMBIGUATIONS AND ONTOLOGICAL REJECTIONS IN CONTEMPORARY THEORETICAL ARCHAEOLOGY**

**Contribution format:** Oral  
**Contribution authors:** Edoardo Vanni (University for Foreigners of Siena)

In recent decades, at the centre of theoretical debate in the so-called humanistic disciplines has been the dualism between subject and object, between objective reality and the subject of representations of the world. A criticism in essence of the Cartesian theoretical operation of the division between *res extensa* (external, objective reality) and *res cogitans* (thinking subject). The object of criticism thus seems to be Descartes, so much so that this new theoretical season is also called post-Cartesian. But is it really all Descartes’ fault? From a philosophical point of view, the genealogy of guilt (let’s call it that) is more complicated than one might think. Matters become more complicated when we drop the ontological discourse within this separation of Cartesian origin, into the discipline of archaeolgy. The latter is particularly indicative for exploring the disciplinary and theoretical implications of this new turbo-ontological season precisely because of the privileged relationship that archaeology intacts with materiality at different levels. Is this elephantiasis of ontology really, as Walter Benjamin already suggested, proof that the only philosophy that has won is phenomenology? Instead, this article intends to propose a different genealogy and possible innovative developments for archaeology and perhaps (also) for philosophy.

**139 PROFESSIONAL ARCHAEOLOGY, ETHICS AND SOCIETY: THE EUROPEAN FRAMEWORK**

**Session theme:** 4. De nobis fabula narratur: archaeological practice and a profession in flux  
**Session format:** Regular session  
**Session keywords:** Professional archaeology, Ethics, Society, Community, Ethical Code  
**Session organisers:** Alessandro Garrisi (Associazione Nazionale Archeologi) – Ros Ó Maoldúin (Institute of Archaeologists of Ireland | Rubicon Heritage) – Franziska Lehmann (DArV - Deutscher Archäologen Verband) – Kai Salas Rossenbach (Inrap)

**SESSION ABSTRACT**

The practice of professional archaeology has developed along distinct paths in different European countries, yet all face similar challenges in upholding ethical standards and maintaining professional integrity. Ethics plays a fundamental role in ensuring high-quality archaeological work and fostering positive relationships between archaeologists, society, and stakeholders. However, when economic pressures lead to compromised ethical standards, the resulting poor-quality work damages not only client relationships but also the public’s trust in archaeology as a profession. Archaeological work encompasses far more than data collection – archaeologists interpret the past for contemporary audiences, shape cultural policies, and help communities engage with their heritage. Yet the field now faces the dual challenge of developing new ways to communicate archaeology’s value to stakeholders while establishing clear ethical guidelines for professional practice. This session explores ethical challenges in contemporary European professional archaeology, specifically examining: - The impact of economic pressures on archaeological work quality and professional standards; - Ethical considerations in relationships between archaeologists, developers, authorities, and local communities; - Professional responsibilities in public engagement and cultural heritage management; - Ethical implications of incorporating Artificial Intelligence in archaeological work; - Implementation and adherence to ethical codes in archaeological practice. Through comparing practices across Europe, this session aims to define core principles of professional archaeology and establish guidelines for maintaining ethical standards while ensuring sustainable professional practice.

**CONTRIBUTION ABSTRACTS**

**1678. THE DIFFERENCE BETWEEN ETHICAL AND NON-ETHICAL: REFLECTION AND PROPOSAL**

**Contribution format:** Oral  
**Contribution authors:** Aglaia Margani (ANA Associazione Nazionale archeologi)

Ethics can be defined as a set of principles and values underlying social, cultural, and professional behaviors, which are inevitably reflected in every social aspect. In the field of professional archaeology the regulatory developments of the last decade in Italy and much of Europe are relevant. These have led to the creation of appropriate professional profiles, which see the archaeological discipline no longer linked solely to academic research, but also to the world of work on par with other work activities born many years earlier. For this reason, the time seems ripe to analyze the working methods and tools of the sector that finally focus on issues such as: the responsibility of knowing how to communicate one’s work in a transparent and accessible manner; the dissemination of good working practices within safe and non-discriminatory work environments; the commitment to report illegal activities concerning cultural heritage even in the event of armed conflict; the spread of a fair culture of compensation appropriate to one’s work duty. These issues are added to much more discussed topics in archeology, like the ethics of archaeological research (given the unrepeatability and destructiveness of archaeological excavation) wich has always questioned the various possible alternatives to extensive excavation, considering



the latest achievements of preventive archaeology. It is proposed to highlight the salient elements of European professional archaeology starting from the regulatory frameworks of some states and then taking inspiration from european companies/institutions/trade associations in the sector already equipped with a code of ethics, such as the EAA, ANA, CNR, ICOM, NVvA (Nederland), IAI (Ireland) and asking for the involvement of existing professional associations, which have not yet adopted real codes of ethics, such as ANACT (France), in order to think and share a single and unequivocal code of ethics for good practice of professional archeology in Europe.

645. ETHICAL CHALLENGES AND PROFESSIONAL PRACTICES IN PREHISTORIC ARCHAEOLOGY. A COMPARATIVE STUDY WITH A FOCUS ON GREECE

**Contribution format:** Oral  
**Contribution authors:** Marie Pyrgaki (Université Paris I, Panthéon-Sorbonne | Hellenic Open University)

This paper explores the ethical challenges and integrity issues encountered by professional prehistoric archaeologists in various European contexts. It focuses on Greece and provides comparative insights from Italy, the United Kingdom, Germany, and France. It shows how economic pressures can lower the quality of archaeological work, harm ethical standards, and strain relationships with stakeholders and the public. Case studies highlight the complexities between archaeologists and developers, stressing the need for ethical negotiations during infrastructural development. Additionally, this paper presents public engagement initiatives aimed at fostering community connections to heritage, along with examining the ethical implications of integrating artificial intelligence in archaeological research. It provides a critical evaluation of different ethical codes, particularly those in Greece and the broader framework offered by the European Association of Archaeologists (EAA). By synthesizing these insights, the study defines core principles for professional prehistoric archaeology, aiming to establish comprehensive guidelines to uphold ethical standards and promote sustainable practices that enhance the credibility and societal relevance of the discipline.

1455. THE CULTURAL PRACTITIONERS IN THE SPACES AND TIMES OF CONTEMPORARY SOCIETY

**Contribution format:** Oral  
**Contribution authors:** Claudia Pizzinato (University of Cà Foscari) – Raffaella Bortolin (—)

Accelerated change has now become a constant in contemporary society: the new space-time coordinates of current living force us to reinterpret the role of cultural heritage practitioners in relation to the rapid changes currently taking place. While it is true that historical events influence our journey, it is equally true that each individual contributes their own story to the historical narrative of these events: what perspective, then, opens up for those who reconstruct this narrative in a time and space accelerated by technological advancement? For some time now, we have also talked about “singularity”, a versatile term that in technology is used to describe the moment when AI surpasses human intelligence, irreversibly changing society. “Singularity” thus indicates an epochal turning point, in which cultural heritage practitioners, seen as primary interlocutors in historical reconstruction, are called to rethink their actions in relation to technological contributions and the new dimensions that space and time have assumed in the contemporary world: the cultural heritage practitioners can no longer limit themselves to being an expert of the past but must inevitably commit to designing the present, to firmly claim the importance of saving roots as the only way to avoid dangerous deviations. Conversely, many decisions at the global level seem slow and sometimes ineffective, still causing numerous disparities, even in terms of the management of cultural heritage and the role that some professions exercise or could exercise. The Faro Convention, for example, adopted in 2005 by the Council of Europe, but ratified by Italy only in 2020, has not yet been truly implemented. Many of its provisions are now outdated by the succession of events, so much so that it too would need to be updated in its fundamental principles.

2022. “STRATIGRAPHIES AND RELATIONSHIPS: NEW MEANINGS, MATERIAL INTERCONNECTIONS AND COMMON GOODS”

**Contribution format:** Oral  
**Contribution authors:** Cristiana Teveroni (—)

In society, what is returned to us as cultural heritage? What distances and proximity create or dissolve relationships between ancient things, the archaeologist and communities? The archaeologist creates value in his work by asking questions of the material remains of the past to give us knowledge: it is the gaze, in fact, that manages to effectively decipher not only ancient things, but also and especially our present as a true stratigraphic cross-section. Archaeology certainly discovers objects, but even more, it recomposes lost realities, recognizing their evanescent or invisible traces, interpreting and making perceptible what has been lost. Distance and proximity are two complementary aspects of the long lifespan of objects and only knowing how to interpret their material history through archeology gives us physical, stratigraphic, functional and spatial relationships. For this reason, it is urgent to overcome the disciplinary dimension and highlight the role of professionals who work with the

public, communities and society in search of an ethical and civil role that gives meaning to archaeological work. Only in this way can archaeology become a common good, a heritage of citizenship and social utility through the involvement of communities and research on contexts and territories. Understanding and addressing the challenges of modernity requires working in a participatory and transparent way to collect, preserve, study, interpret, and contribute to human and social justice, to protect the well-being and memory of future generations by guaranteeing equal rights and access to wealth for all.

1375. OPEN ARCHAEOLOGY - OPEN SOCIETY CROSSROADS

**Contribution format:** Oral  
**Contribution authors:** Pavlos-Stylianos Megalooikonomou (National Technical University of Athens) – Athina Chroni (National Technical University of Athens | Hellenic Ministry of Education, Religious Affairs and Sports)

The integrity of cultural heritage sites and their continuing authenticity are fundamental concerns, particularly as the notion of heritage embraces also traditions, as well as everyday life. Nevertheless, our cultural memory is permanently damaged irretrievably, given that cultural disasters, are quite repetitive. Consequently, developing methodologies for safeguarding cultural collective memory, demands digitization, public awareness, community and stake-holders involvement, as well as open access and linked open data. The Faro Convention on the Value of Cultural Heritage for Society/The Council of Europe 2005, constitutes among, other charters, the leading one under the perspective of opening up to the society and restoring the democratic dimension of the cultural process. In this framework, the notion of open archaeology becomes more and more visible, thus proposing new types of methodologies and co-operations. Outlining the emerging cultural heritage management framework has become an urgent priority, in order to redefine the contemporary archaeologist’s framework, whether it concerns field work or laboratory work processing.

1954. ARCHAEOLOGY AND PROFESSIONAL ETHIC IN THE AGE OF AI

**Contribution format:** Oral  
**Contribution authors:** Rossella Atlante – Alessandro Garrisi (Associazione Nazionale Archeologi)

Technology is part of our lives: it influences every aspect and also impacts the way we work. The challenge of the present concerns the embedding of AI in professional work. This can represent a real revolution, which requires in-depth ethical reflections. How can we bring this technology into the world of professionalism without being overwhelmed? AI can and must be a technological support, while the responsibility of judgment and evaluation must be left to humans. The quality of the AI product must also be ensured. Every innovation is initially greeted with a certain scepticism, but this should not limit its use. Rather, it should lead to the development of ethical procedures that guarantee its sustainable and responsible use. There are different aspects to keep in mind when talking about the use of AI in professional activity. The intellectual property of the contents from which the AI draws to produce its responses is one of these. As well as the originality of the archaeologist’s work: if he uses AI in his study, how truly original can his work be defined? These are just some examples of topics that will be presented for public discussion: not conclusions, but a starting point for future developments.

142 PLANT POWER: INTERDISCIPLINARY APPROACHES TO THE STUDY OF NON-FOOD PLANT RESOURCES

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Regular session  
**Session keywords:** plant dyes. medicinal plants, fibres, archaeobotany, interdisciplinary approach, ethno-botanical research  
**Session organisers:** Cristina Ambrosioni (University of Padua) – Anit. Radini (University College Dublin)

SESSION ABSTRACT

Throughout human history, plants have been essential not only as food sources but also as integral components of culture, influencing daily life and community practices worldwide. Their roles extend to providing fuel, crafting materials, and spiritual significance. The study of plants in material culture remains underexplored within archaeology, often due to a lack of methodologies. This session aims to investigate the captivating realm of non-food plant resources, concentrating on four primary areas: plant dyes and fibres, medicinal plants, and the aromatic qualities of incense and resins, along with the potential uses of smoke for preservation and hygiene. We will begin with an exploration of plant dyes and pigments, which have been employed to colour textiles and artifacts. These natural hues have enhanced clothing and have also expressed social status and cultural identity. Participants will



discover the historical importance of various dye plants, their extraction methods, and traditional dyeing techniques. Next, we will focus on wild and domesticated plant fibres, which have been crucial in the development of early fabrics and textiles, showcasing local ingenuity in utilizing available resources. The session will then shift to medicinal plants, connecting cultural heritage with contemporary scientific understanding. We will highlight the significance of ethnobotanical research in uncovering the healing potential of diverse plant species and how traditional medicinal practices influence modern applications of plants and smoke. Lastly, we will delve into the world of incense and resins, revered not only for their fragrances but also for their roles in spiritual and ritual contexts. We invite contributions across various disciplines, including archaeology, archaeobotany, chemistry, and biology, to examine materials from prehistory to the Middle Ages and across cultures. This interdisciplinary approach seeks to reveal historical practices while enhancing our understanding of well-being and craftsmanship, ultimately uncovering the overlooked narratives of everyday plant resource applications.

CONTRIBUTION ABSTRACTS

2220. TEXTILE PLANT POWER: TRACING PLANT FIBRE TECHNOLOGIES ACROSS EUROPE

**Contribution format:** Oral  
**Contribution authors:** Margarita Gleba (University of Padua)

Since the Palaeolithic, plants provided the resources for string, yarn and fabric. The transition from wild plant fibres to domesticated species is associated with the appearance of major technologies such as spinning and loom weaving in many parts of the world. On the other hand, the change from splicing to spinning plant bast fibres such as flax took place millennia after the domestication and establishment of both technologies for different types of materials. Drawing on research accumulated to date, this paper aims to trace, in broad strokes, the major technological transitions in the use of textile plant fibres in prehistoric Europe and compare them with the contemporaneous developments across the world. I propose that multidisciplinary approaches are necessary in order to investigate the archaeology of textile plant fibres holistically, including structural analysis of extant fabrics, microscopy of fibres, archaeobotanical studies of processing debris, seeds and pollen, tool investigations, and experimental archaeology.

1928. READING BETWEEN TEETH: THE IDENTIFICATION OF PLANT REMAINS USED IN CRAFTS IN ANCIENT HUMAN DENTAL CALCULUS

**Contribution format:** Oral  
**Contribution authors:** Anita Radini (School of Archaeology, University College Dublin)

Dental calculus is a deposit on tooth enamel, formed by the mineralisation of dental plaque that was not removed. It is well known that, while forming, dental plaque captures a great variety of particles within its matrix, including starch, fibres, minerals, pigments and biomolecules. A lot of attention has been given by scholars on the study of ancient diets using debris in calculus. It is also very well known that a number of crafts materials can be recovered from the mineralised matrix of dental calculi. This paper focuses on the potential and limitations of using micro remains of plant materials found in calculus that is not the result of deliberate consumption of plants as food. The paper will discuss finds from the 4th to the 18th century AD from England. The results from over 250 individuals consisting of plant material used for textile, dyes and basketry will also be discussed based on biological sexes and contrasted with other osteoarchaeological parameters. and It will address potential, limitation and a research agenda for the future.

1798. EXPLORING THE MATERIALS AND AESTHETICS OF MONOCOTS IN SCOTTISH HISTORIC AND PREHISTORIC FABRICS, CORDAGE, AND BASKETRY

**Contribution format:** Oral  
**Contribution authors:** Nysa Loudon (University of Glasgow)

In recent years, more attention and research has been paid to the identification of non-domesticated fibrous plants within prehistoric fabrics and cordage such as tree basts and lesser studied herbaceous basts such as nettle and hop (e.g., Miettinen et al., 2008; Bergfjord and Holst, 2010; Suomela et al., 2022). Alongside this growth in the identification literature, there is also growing research in the identification and technical analysis of prehistoric plant-based basketry in Europe (e.g., Herrero-Otal, Romero-Brugués and Piqué Huerta, 2021; Martínez-Sevilla et al., 2023; Andonova-Katsarski, 2024). Within this context of research, there regions are ripe for re-examination of fibrous plant materials for fabric, cordage, and basketry. This paper will compare prehistoric and folk use of monocots such as grasses (Poaceae), sedges and bulrushes (Cyperaceae), and rushes (Juncaceae) within Scotland in technique, botanical taxa used, and sensory details collected during the course of the author’s PhD research. Historic folk and ethnographic information from the Highlands and Islands of Scotland cite the use of grasses, like marram grass (*Ammophila arenaria*), as key materials in traditional basketry. However, materials research

surrounding the techniques of monocots within fabric, cordage, and basketry in prehistoric and folk historical Scotland requires further attention. Examples of these fibrous objects from Oakbank Crannog, Loch Tay (Iron Age) and various Bronze Age burials and votive deposits within the Highlands and Islands will be compared to a selection of monocot-based objects within the Am Fasgadh Collection at the Highland Folk Museum. Monocots, while often not considered as readily for fibrous plant objects in identification studies, turn out to be not only useful for the creation of fine and strong domestic and basketry items in late 19th to early 20th century Scotland but for the creation of fine fabrics and fringes in prehistoric domestic and burial contexts as well.

1834. AN ARCHAEOLOGICAL STUDY AND DOCUMENTATION OF THE NATURAL DYES USED IN THE PRODUCTION OF THE TUTANKHAMUN TEXTILE COLLECTION

**Contribution format:** Oral  
**Contribution authors:** Islam Shaheen (Sapienza university of Rome)

There are three primary sources of knowledge regarding ancient Egyptian textiles: depictions of textile production, written descriptions, and surviving textiles, which are the main focus of this research. Tutankhamun is widely known for the luxurious and beautiful objects found within his tomb, discovered by Howard Carter in 1922. The textiles discovered in Tutankhamun’s tomb provide a fascinating glimpse into the nature and extent of a pharaoh’s wardrobe during the New Kingdom. This collection is among the most important pieces of ancient Egyptian textiles. The tomb contained hundreds of textiles and cloths, many of which were dyed, found tied around the necks of statuary and stored in large chests. Some of the textiles were simple rolls of cloth, while others were part of elaborate ceremonial robes adorned with embroidery. The dyes have never been studied, and their manufacturing process remains unknown. The study will therefore apply multidisciplinary methods to understand the manufacturing techniques of the collection for the first time. These findings will help further investigate the dyes, and this approach to studying them will provide new insights into 18th Dynasty textiles. The research focuses on the history of dyes from Tutankhamun’s textiles to understand the significance of the dyes used in his textiles, which will generate substantive and new information about ancient Egyptian textile production, particularly those used by and during the rule of Tutankhamun. Understanding the dyeing technology will further our understanding of social, political, and religious ideology, as well as technical innovations in textile manufacturing, spinning, and dye recipes and application.

1383. FROM WEEDS TO REMEDIES : ETHNOGRAPHIC AND ARCHAEOBOTANICAL PERSPECTIVES FROM NEOLITHIC NORTHERN GREECE

**Contribution format:** Oral  
**Contribution authors:** Evanthia-Stefania Kourti (Université Paris 1 Panthéon Sorbonne | EUR ArChal | UMR 7041 ArScAn | LabEx DynamiTe, Groupe de Travail “Risques”)

Foraging wild plants has long been integral to human subsistence, but their exploitation extends beyond food consumption. An ethnographic study in the mountainous region around Olympus, Greece, explored contemporary plant foraging practices, revealing the continued use of species often labeled as “weeds” in regional archaeobotanical literature. Informants, selected for their expertise in plant foraging, provided insights into species collected, foraging and preservation techniques, and their various uses. A list of 15 species was drafted, nine of which also appear in Northern Greek Neolithic sites. The most commonly reported uses were dietary—primarily in times of famine—and medicinal. Medicinal plants were consumed as herbal teas, eaten, or steamed, with the fumes either inhaled or applied to affected areas. Their selection was largely based on ancestral traditions, treating ailments ranging from infertility and dysmenorrhea to kidney pain and muscle cramps Most identified species were herbaceous plants, along with seeds, flowers, and trees (boiled bark wood). To further investigate the potential link between these ethnographically recorded uses and their presence in Neolithic contexts, a multi-proxy analysis was designed. Botanical microremain analysis was selected for its precision in detecting plant use on artifact surfaces. We employ a combination of phytolith and starch grain analysis, comparing archaeological samples to a reference collection of both archaeobotanically identified and ethnographically documented species. Additionally, experimental data will assess microremain dispersal in open-air cooking and/or plant-processing areas, helping to refine interpretations of archaeological findings.

739. ORGANIC COMPOUNDS IN IBERIAN IRON AGE SUBTERRANEAN RITUALS: A MULTI-ANALYTICAL APPROACH

**Contribution format:** Oral  
**Contribution authors:** Sonia Machause López – Gianni Gallello – Yolanda Carrión Marco – Marc Valls Mompó – Francesc Esteve-Turrillas (University of Valencia)

Plants played a key role in ancient ritual practices. However, their recovery and study were often overlooked in 20th century excavations. Last analyses of preserved plant remains, along with iconographic evidence have



provided valuable insights into their significance in some societies like in the Iberian Iron Age (6th - 1st centuries BC). Calyx vessels have been related to Iberian Iron Age caves rituals (5th-2nd BC), being employed as containers or as lamps. However, few works were investigating use and content in this ceramic typology. To push forward in this direction a multi-analytical study on a pottery base sherd from a calyx-form vase found at Sima de l'Aigua (València, Spain) was developed. The sherd keeps necked eyes visible incrustations of charcoal, ashes and unidentifiable residues on its surface. The implemented methodological approach consisted, first in carrying out botanical identification of charcoals remains to determine plant species, followed by gas chromatography analyses to identify the presence of organic compounds in ashes and identifiable residues. Finally, the chemical data were cross-referenced with bioarcheological evidence, and the archaeological record, confirming the presence of rosemary and beeswax. These substances may have been offered or used as fuel to lighten specific parts of the ritual space. Consequently, for the first time beeswax incrustation mixed with charcoal is identified inside a ceramic vase, providing new insights into the Iberian cave ritual practices.

**47. AROMATIC PLANTS USED FOR PERFUMES’ AND COSMETIC’S CREATION IN THE AEGEAN PREHISTORY: MINOAN AND MYCENAEAN PERIODS**

**Contribution format:** Oral  
**Contribution authors:** Angeliki Liveri (Independent)

This paper presents aromatic plants and flowers which were used to create perfumes (aromatic oils) and cosmetics (ointments etc.) in Ancient Greece, focusing in the Minoan and Mycenaean periods. Names, ingredients and preparation’s methods will be discussed. References in written sources (tablets of the Linear script, Homer etc.) will be compared to and combined with archaeological evidence; e.g. perfume’s workshops, especially in Crete and Peloponnese, perfume vases and occasionally their remains, representations of plants and flowers. The use of plants, flowers and perfumes in religious and everyday life will also be examined. For example, they were offered to the gods, but they were also used by people for the care, beautification and perfumement of houses, palaces, sanctuaries or other places, as well as the body. Raw materials or finished products (aromatic oils) were imported and exported. There was exchange with neighboring peoples (e.g. Egyptians or others from Asia Minor and the Near East). This article aims to present and classify the perfumes of the Minoans and Mycenaeans, depending on the plants, their method of preparation, trade and other factors. In this way, we will follow the beginnings and the development of ancient Greek perfumery and cosmetology. The simple and limited perfumes and cosmetics of the prehistoric era multiplied in subsequent periods and reached perfection during the Hellenistic era.

**511. BEYOND BREWING: THE FORGOTTEN USES OF HOPS IN TEXTILE AND PAPERMAKING**

**Contribution format:** Poster  
**Contribution authors:** Hana Lukesova (University Museum of Bergen)

Hops (*Humulus lupulus* L.) is an ancient perennial plant native to the Northern Hemisphere and a member of the *Cannabis* family (*Cannabaceae*). While best known for its essential role in beer brewing, its history reveals a far broader range of applications. Archaeological evidence suggests that hops have been utilized since at least the 6th century AD in Europe, not only as a brewing ingredient but also for medicinal, antibacterial, and textile purposes. Traditionally, hops were used as a sleeping aid and for antibacterial treatments. Hops straw served as bedding material and pillow stuffing. Less widely recognized is its role in textile and papermaking. In medieval Norway, farm owners were required to cultivate a set number of hop plants, a legal obligation that persisted in Sweden from 1414 to 1860. Since only female flowers are used in brewing, vast amounts of plant material were left unused, making it likely that people sought alternative ways to repurpose the leftover stems, including extracting their bast fibres. This study explores the historical diversity of hops beyond its primary use in brewing. It also highlights the challenges in distinguishing hop fibres from those of hemp (*Cannabis sativa* L.), another bast-fibre plant from the same botanical family. By examining the overlooked secondary applications of hops, this research aims to shed light on its broader cultural and economic significance and contribute to discussions on sustainable resource use in historical and modern contexts.

**856. THE CONSERVATIVE PROCESS OF MINERALIZATION FOR TEXTILES**

**Contribution format:** Poster  
**Contribution authors:** Clara Belletti (Università Cattolica di Milano)

In this paper, the focus is on the conservation process of textile elements through mineralization; various aspects of the process will be analyzed. The study will examine how much of the original artifact is preserved and how much is lost during the conservation process due to the metals involved. Additionally, the paper aims to explore which characteristics of the textile artifact are altered by mineralization, how these changes occur, and how much it is possible to predict this conservation process in order to reconstruct the original characteristics of the element before it was deposited in the soil. Another key point is to identify which types of metals enable this conservation

process of mineralization and how it varies between different metals. Indeed, it is possible that different metals influence the success of the process in different ways, leading to varying outcomes. Lastly, the paper will investigate the biological and climatic factors of both the micro-environment and the macro-environment that may affect the process, as well as the anticipated timeline for the completion of mineralization.

**1607. BAST CORDAGE FROM THE SUSZ HOARD - A SMALL ITEM, A BIG SURPRISE**

**Contribution format:** Poster  
**Contribution authors:** Magdalena Przymorska-Sztuczka (Archaeological Museum in Biskupin)

Archaeological textiles from the 1st millennium BCE in Poland are relatively scarce and products made of tree bast are even rarer than fabrics. The archaeological finds contain a limited scope of evidence for the production and use of bast cordage during this period in today’s Poland. Tree bast fibres are only evidenced from northern Poland and have been preserved largely in association with metal objects. These were found only in a few locations, for example, Żelazo, Kaliska and Jodłowno. But recently, the remains of bast cordage were identified among the metal artefacts from a Late Bronze Age hoard from Susz in north-eastern Poland, which is the richest collection of bast cordage that has been found in the region to date. The Susz cordage was analysed for a production technique and fibre identifications. Radiocarbon dating was used to determine the chronology of the cordage and to place the Susz hoard more firmly within the context of the North European Bronze Age.

**2078. INVESTIGATING PLANT EXPLOITATION IN ANCIENT MESOAMERICA BEYOND FOODSCAPES**

**Contribution format:** Poster  
**Contribution authors:** Clarissa Cagnato (Ca’ Foscari University of Venice)

Deciphering the complex ways in which plants were used and thought of in the past is tricky but unquestionably enriches our understanding of these societies. This poster presents a selection of archaeobotanical data– mostly in the form of carbonized macrobotanical remains (e.g., seeds, fibers) and to a lesser extent microbotanical evidence (phytoliths)– that have been recovered in diverse ancient Mesoamerican contexts (Maya and Teotihuacan). The focus is on taxa that are not typically known for their edibility but instead might be better known for their use in domestic contexts but also for their medicinal properties, in particular among contemporary Maya communities who still practice traditional medicine. Other plants might have been also used for their mind-altering virtues or aromatic qualities, as in the case of tobacco but also flowers. By weaving together archaeological, epigraphic but also ethnobotanical and ethnohistorical data, the poster seeks to highlight the multitude of ways in which pre-Hispanic societies broadly integrated the vegetal world into their lives.

**143 INTIMATE SPACES, EVERYDAY LIVES: ARCHAEOLOGIES OF DOMESTICITY, HABIT, AND HOME**

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** Domestic, Dwelling, Intimacy  
**Session organisers:** Tania Casimiro (NOVA University of Lisbon) – Maij. Helamaa (University of Turku)

**SESSION ABSTRACT**

From the faint outlines of a kitchen hearth to the worn floors of a bedroom, domestic spaces offer a privileged vision into the rhythms, aspirations, intimacy, and complex social dynamics of everyday life. This session invites archaeologists to explore the material worlds of the home and its role as a site of consumption, ritual, labour, and identity-making. We aim to bring together scholars who study the subtleties of domestic habits and social interactions, examining how people shaped their surroundings—and were shaped by them—in ways both intentional and routine. We encourage contributions that investigate all facets of life within domestic spaces across cultures and time periods: the objects of daily use, patterns of consumption, evidence of care or neglect, and the small, repetitive actions that speak to larger social trends. Topics may include (but are not limited to) the archaeology of meals and food preparation, child-rearing and gendered labour, sensory and embodied experiences of home, and the relationship between private and public realms within households. Through this session, we hope to stimulate conversations on the varied material landscapes of domestic life and open new windows onto the intimate worlds that are so often hidden in the grand narratives of the past. We will explore the social, economic, and emotional dimensions of domestic archaeology, seeking to debate the complexities of what it means to make, inhabit, and maintain a home.



559. ARCHAEOLOGY OF UNWANTED: WASTE MANAGEMENT AS EVERYDAY ACTIVITY OF LBK SETTLEMENTS

**Contribution format:** Oral  
**Contribution authors:** Daniel Pilar (Institute of Archaeology of the Czech Academy of Sciences, Prague | Department of Archaeology, Charles University, Faculty of Arts) – Martin Janovský (Department of Archaeology, Charles University, Faculty of Arts) – Lenka Lisá (Institute of Geology of the Czech Academy of Science)

The reconstruction of everyday life in Early Neolithic households has long been a subject of research. Within the Linear Pottery Culture (LBK; 5500–4900 BC), numerous studies have explored food processing, the organization of production activities within settlements, and the socio-economic dynamics of individual households. However, studying these aspects is inherently challenging and often subject to considerable uncertainty. One specific activity, however, stands out as particularly well-documented in settlements and that has been an integral part of the daily life of human communities since the Palaeolithic: waste management. In sedentary societies, waste management is a necessary habit that leads to the cultivation of houses and their surroundings. Thus, Neolithic communities unconsciously shaped patterns of waste through their cultural tradition, which today can provide a closer look at how different types of waste were perceived, how they arranged the settled space, or the extent to which different communities were similar in these behaviours. This paper presents multidisciplinary study of waste management at selected LBK settlements in Central Europe. At these sites, the structure of artefacts and ecofacts in waste deposition areas was analysed. These data have been combined with geoarchaeological analyses (OSL, EMMA analysis, pXRF) that significantly extend our understanding of prehistoric waste deposition. The results show that waste management in the settlements was diversified. They also show that across sites there were cultural patterns in how waste was handled and where it was deposited in the settlement space. This study thus provides insights into the routine disposal practices of Neolithic settlements and highlights how these behaviors influence the interpretation of archaeological assemblages.

1297. SHARED TRADITIONS, INDIVIDUAL LIVES: RETHINKING CHALCOLITHIC ROUNDHOUSES

**Contribution format:** Oral  
**Contribution authors:** Victor Klinkenberg (Archaeological Research Unit, University of Cyprus)

Houses from the Cypriot Copper Age (or Chalcolithic) exhibit a fascinating uniformity in shape and layout. Although it is generally assumed that multiple buildings were combined to form composite households, each structure typically features a central hearth and a segmented, plastered living space that together evoke a domestic norm. Their construction was a long-term, labour-intensive process—likely a communal endeavour—and the deliberate burning of some buildings during abandonment appears as a public spectacle. Owing to their high visibility in the archaeological record, these dramatic phases have long been used to characterize the Chalcolithic house and to support models of settlement dynamics and social organization that emphasize egalitarianism and communal identity. Research at the Chalcolithic site of Palloures, however, has revealed stratified floor levels and extensive post-abandonment habitation layers within ruined buildings. Over time, a monumental structure was repurposed as a shed, while the site of a ritual conflagration later functioned as a toilet. These findings introduce important nuances to our understanding of these buildings and reveal how they were used and valued by their inhabitants throughout their long use-life. In this presentation, I will discuss the tension between the outward, communal expression evident in the uniform design of Chalcolithic roundhouses and the unique, dynamic use phases recorded within individual structures. Drawing on insights from micromorphology and detailed stratigraphic analysis, the aim is to examine how shared cultural norms intersect with individualized everyday practices, revealing a more complex and nuanced picture of domestic life in the Chalcolithic period.

1790. EVERYDAY LIVE BEHIND THE WALLS OF A CHALCOLITHIC HOME AT TELL YUNATSITE, SOUTHERN BULGARIA

**Contribution format:** Oral  
**Contribution authors:** Victoria Haleva (Sofia University “St. Kliment Ohridski”)

The home can be seen as a reflection of its inhabitants. The organization of domestic space, although largely determined by practical and cultural aspects, always has a touch of identity. The daily domestic activities in a prehistoric house can only be interpreted through the material remains that we uncover. The time is the second half of the 5th millennium BC (Late Chalcolithic period), and the place is Tell Yunatsite, located on a low river terrace in the Upper Thracian plain, surrounded by mountains on three sides. The favorable location presupposes the long-term habitation of the region and turns it into a contact zone between different cultures. This presentation focuses on two almost completely excavated consecutive buildings, and attempts to gain insight into the

daily lives of the inhabitants through an analysis of the interior (structures, artifacts, vessel). The similarities and differences between the two buildings are explored – the use and distribution of space, specialized areas related to food storage and preparation, domestic rituals, wall decorations, etc. Particular attention is paid to the ceramic complexes in both buildings, as a source of multifaceted information. The distribution of the different categories of vessels in the domestic space is explored. A different view is given on the symbolism of the decoration, related both to the function of the vessels and to the aesthetic preferences of the inhabitants. The analysis and comparison of the two successive buildings raises questions about the similarities and differences between them – the continuity and the identity-making. This presentation proposes some possible answers to these questions.

2240. HOUSEHOLD, COMMUNITY, AND THE CONSTRUCTION OF DOMESTIC SPACE IN LATE BRONZE AGE NON-PALATIAL SETTLEMENTS OF MAINLAND GREECE

**Contribution format:** Oral  
**Contribution authors:** Sarah Hilker (University of North Carolina at Chapel Hill)

Many activities of daily life occur in and around houses; yet, the buildings themselves are part of daily life as well. Residential buildings and intervening spaces are settings for quotidian activities, and they are social spaces, creating an architectural framework for social engagement. In doing so, residential buildings not only result from and reflect social structures and processes, they play an active role in shaping how social relations are constructed, performed, maintained, and (re)negotiated. The physical construction of houses, therefore, is one facet of the complex social dynamics of everyday life. In this paper, I use case studies from Late Bronze Age Mainland Greece to identify and discuss ways in which Late Helladic (Mycenaean) domestic architecture from non-palatial settlements indicates choices and aspirations of families in engagement with their communities. In particular, I suggest that decisions regarding location, plan, and material must balance the needs and resources of the household with those of the community and what is considered socially acceptable. Additionally, the act of building a house may be a socially constructive aspect of daily life, at least for a time, either by directly involving other members of the community or as a process that is performed within and in front of the wider community. Longer term maintenance and renovation may then be seen as further repetition or reinforcement of the social position of the household within the wider social group.

1124. LIFE BEYOND AND BETWEEN WALLS: A GLIMPSE INTO A MIDDLE BRONZE AGE HOUSE

**Contribution format:** Oral  
**Contribution authors:** Nóra Szabó (HUN-REN Research Centre for the Humanities Institute of Archaeology) – Gábor Szilas (BHM Aquincum Museum and Archaeological Park)

Detecting individual roles, household tasks, daily routines, and personal movements is an extremely complex and challenging task in archaeology, especially when we are dealing with prehistoric phenomena. Current research approaches this issue from two main perspectives: by analyzing the community (activity zones of settlements, spatial organization), and through scientific analyses (bioarchaeology, soil samples, etc.). The Middle Bronze Age of the Carpathian Basin provides an excellent starting point for such investigations, as the communities using the Vatia ceramic style developed a highly complex settlement network. This network included tell, fortified and hilltop sites, as well as smaller and larger open settlements. In the Danube region and its surroundings, several large, single-layer settlements have already been analyzed in terms of their activity zones (e.g., Budajenő – Hegyi-szántók, Budapest, District III, Királyok útja 291–295). However, unlike the nearby tell settlements, no well-reconstructed post-built structures have been identified at these sites. In recent years, excavations have begun within the administrative boundaries of Budapest, directly adjacent to the Danube riverbed, revealing a new Middle Bronze Age settlement comprising several hundred features (Budapest, III. Folyamőr utca (former BUSZESZ)). Among the discoveries, a structure of a building dating to this period was also identified. During the excavation of its approximately forty-centimeter-thick collapse layer, remains of the roof and walls, multiple renewed floor levels, fireplaces, as well as the structural layout of the supporting beams and wall posts were documented. In our presentation, we aim to reconstruct the daily lives and activities of the individuals associated with this house by analyzing its spatial organization and related features (fireplaces, pits), the artifacts found within, the results of archaeobotanical studies, and the overall internal structure of the settlement (active zones, peripheries, ritual spaces, boundaries).

1686. COOKING POTS FROM THE INDIGENOUS SETTLEMENT OF C. DA SAN BENEDETTO IN CALTABELLOTTA (AG)

**Contribution format:** Oral  
**Contribution authors:** Antonio Barbera (Independent)

This contribution will present in detail the ceramic finds for cooking and preparing food found during the excavation campaigns in the indigenous center of C. da San Benedetto in Caltabellotta (AG). The settlement in the



6th century. BC, especially in the second half, shows various contacts with the Greek world of colonies. Then destroyed at the beginning of the 5th century. B.C. , with more sporadic attendance in the 5th century. B.C. Among the domestic environments, corners dedicated to cooking food have been identified, with inside those vases used in the kitchen by indigenous cultures. In particular, there are numerous pots of different types, but baking trays and cooking plates have also been found. Comparisons with the contemporary indigenous world of central-west-ern Sicily will also be taken into consideration. In order to attempt to reconstruct the methods and habits of the indigenous people in the archaic period through ceramic forms.

**330. CREATING, MAINTAINING AND DESTROYING: DOMESTIC RITUALS IN THE NORTHWESTERN EUROPEAN IRON AGE**

**Contribution format:** Oral  
**Contribution authors:** Maël Benallou (Ghent University)

Ritual depositions have long intrigued archaeologists, particularly in funerary contexts and hoards, which have historically received the majority of scholarly attention. In recent decades, however, depositions found in domes-tic sites have begun to receive greater recognition. These domestic depositions differ significantly from those in traditional ritual contexts in terms of the materials used, their treatment, and their locations. Existing research often focuses on either superficial regional overviews or detailed single context analyses, making it difficult to identify broader, overarching patterns. Therefore, a more systematic, large-scale study is needed to validate previous findings and better understand the general trends in domestic depositions across regions. This presen-tation will focus specifically on domestic depositions within building plans of the Somme-Meuse-North Sea region during the Iron Age. The methodology involves a comprehensive literature review, incorporating both grey literature and published sources, followed by a systematic object analysis. The study considers two scales: the context scale, which examines the type, location, and formation of depositions, and the object scale, focusing on object types, materials, and potential special treatments. By combining these analyses, the study uncovers new patterns while confirming previously known characteristics, thereby offering deeper insights into the cultural significance of these domestic depositions.

**427. QUOD BONUM, FAUSTUM, FELIX, FORTUNATUM, SALUTAREQUE SIT - ROMAN FOUNDATIONAL RITUALS AT MIROBRIGA, A SMALL TOWN IN LUSITANIA (PORTUGAL)**

**Contribution format:** Oral  
**Contribution authors:** Daniel Andrade (CHAM – Centro de Humanidades. NOVA/FCSH - Universidade Nova de Lisboa | CIDEHUS - Universidade de Évora) – José Quaresma (CHAM – Centro de Humanidades. NOVA/FCSH - Universidade Nova de Lisboa) – Martim Lopes (URV - Universitat Rovira i Virgili | CHAM – Centro de Humanidades. NOVA/FCSH - Universidade Nova de Lisboa) – Raquel Guimarães (ERAAUB/IAUB - Universitat de Barcelona | CHAM – Centro de Humanidades. NOVA/FCSH - Universidade Nova de Lisboa) – Paulo Calaveiras – Cristiana Ameixinha (CHAM – Centro de Humanidades. NOVA/FCSH - Universidade Nova de Lisboa)

Mirobriga, a small Roman town near the coast of present-day Portugal, has been excavated since the early 1800s due to its archaeological potential (having been left abandoned since Late Antiquity). During several of these excavations, a curious archaeological phenomenon has been recorded. Archaeologists have found small ceramic bowls, containing sometimes avian bones or eggshells, purposefully deposited inside cavities in the bedrock, with the bottom facing up. Archaeological research has reported eight cases of this ritual at several buildings, whose functions varied from commercial to residential, usually dated to the second half of the 1st century AD. Having the TabMir project excavated one of these ritual contexts at the site in 2024, our research team has decided to compile the information presented at Mirobriga and draw parallels. At a local level, the only similar case is Sines - a Roman port town connected directly to Mirobriga, by an 18-kilometer road - where two identical bowls have been unearthed, in the same configuration, and bearing avian bones. In Portugal, although the same type of bowl is commonly found both in domestic and funerary sites, the same ritual does not appear to have been recorded. Similar rites (although not identical) were found as close as the Roman villa of Freiria and the town of Conimbriga, with other recorded cases throughout the Mediterranean. An attempt is made to curtail the religious meaning of these foundational rituals, comparing the archaeological record to historical sources on private reli-gious affairs in the ancient Roman Empire. By doing this, we hope to better understand the beliefs of the people who inhabited Mirobriga.

**1349. GUARDING AND LIVING IN THE ENSLAVER’S HOME: THE DOORKEEPER (OSTIARIUS) IN THE HOUSES OF POMPEII**

**Contribution format:** Oral  
**Contribution authors:** Francesca Lapasta (University of California, Berkeley)

In the Ancient Roman world, enslavers often appointed enslaved members of their household to serve as door-keepers who would monitor movement both into and out of the house. These doorkeepers not only labored but also lived within the homes of their enslavers. Moreover, the doorkeeper was explicitly linked to certain spaces in the house, sometimes quite literally: ancient sources describe enslaved doorkeepers being chained to the house itself. The role of the enslaved doorkeeper, or ostiarius, is thus a paradoxical one which displays both the trust placed in enslaved people by their enslavers, as well as the level of control enslavers had over the lives of the enslaved. This presentation explores the experiences of Roman doorkeepers through an investigation of the rooms in which they may have lived and labored. With a focus on the well-preserved architecture and domestic assemblages from Pompeii in Southern Italy, I identify all potential doorkeepers’ rooms in the city based on their location in the house and affordances for monitoring movement. Spatial analysis reveals that particular neigh-borhoods have higher concentrations of these architectural spaces, suggesting a greater occupation with security on the part of certain groups of enslavers. Alongside the citywide view, I conduct an in-depth investigation of two case studies that allow for an integration of the small finds, fixtures, decorations, and graffiti from individual rooms. The decorations and fixtures indicate enslavers’ preferences and mechanisms for employing labor, but the enslaved people who occupied these spaces are also represented. Through tracing aspects of doorkeepers’ rooms which enslaved people could have influenced more directly, like small finds and graffiti, this presentation also offers insight into how doorkeepers left their mark on the material world of the houses that were both their homes and the locus of their degradation and enslavement.

**1925. STITCH AFTER STITCH: CONTEXTUALISING METAL THIMBLES FROM TALLINN, ESTONIA**

**Contribution format:** Oral  
**Contribution authors:** Monika Reppo (Tallinn University)

Although thimbles are tools of the oldest regulated trade in Estonia and the Baltics, tailoring, they were not limited to professional use and are found from various domestic contexts across medieval and post-medieval Tallinn. However, their presence in Estonian archaeological material is generally mentioned only in passing, if at all. A decent collection of these evocative objects has accumulated over the decades but has remained largely unstudied. Now, a preliminary overview of collected artefacts from Tallinn has been obtained. Can the (rela-tively) well-studied historical backgrounds of plots and properties in Tallinn provide crucial context beyond the archaeological dimension and typology? What type of domestic contexts are thimbles found from? Who used these objects? How to ascertain whether they were an everyday object, treasured possession, or tools of a trade that extended beyond the confines of one’s home? Is it even possible? This paper examines the places and spaces that 14th–19th-century thimbles have been found from and their use in medieval and post-medieval Tallinn based on archaeological finds and archival records.

**1006. ARCHAEOLOGICAL MATERIAL AND THE INDIVIDUALS OF A HOUSEHOLD – A CASE STUDY FROM AN 18TH CENTURY NORDIC TOWN**

**Contribution format:** Oral  
**Contribution authors:** Maija Helamaa (University of Turku | Muuritutkimus Ltd.)

Recent large-scale urban excavations in Turku, Finland offer the possibility to combine extensive and accurate archaeological contextual data with detailed information about the inhabitants of the area, derived from written sources. This paper focuses on annually taken population registers which have been preserved in Turku archives as a continuous series, starting from the 1750s. Archaeological material tends to be a complex amalgamation of various events, usually formed during a long period. Compared to these census lists, an archaeological unit, even accumulated in situ, may contain the material culture of dozens of people, some of whom have lived in the area for decades, and some perhaps for only one year. For an archaeologist, studying these lists of inhabitants was an eye-opener. First, it is rare that the precise location of archaeological data can be so accurately connected to the written records concerning a certain housing unit. Secondly, if such information is available, the status of the house is often described by the socio-economic features of its owner. However, every household has been given their own row in the census lists. Families of different sizes and unmarried occupants have been denoted together with their apprentices, maids, mothers-in-law et cetera; all of whom were members of the same house-hold, at least according to the tax authorities that have produced these registers. In this paper, I ask how much do we consider a diverse range of people when we try to interpret material culture. Are they even traceable through archaeological research? And is this kind of individual-oriented approach useful or is it unnecessary?



1506. CERAMICS AS RESISTANCE: IMPORTED AND INDIGENOUS CERAMICS FROM SOUTHEASTERN LIBERIA, WEST AFRICA AS TOOLS OF ANTICOLONIAL RESISTANCE AND AGENCY

Contribution format: Oral  
Contribution authors: Megan Crutcher (Texas A&M University)

As Africa’s first Black Republic and only one of a few nations never colonized by Europeans, Liberia is a unique and special case study of the mechanisms of anticolonial resistance and agency in the Atlantic World. It was settled by free African Americans and Afro-Caribbeans in the nineteenth century, though not without push-back from Indigenous people. Southeastern Liberia is home to coastal fishing communities that date back to the fifteenth century and earlier. One of the Indigenous groups that call southeastern Liberia home are the Kru, who became famous for contracted wage labor aboard European ships and in European ports across the colonial maritime world. However, at home in southeastern Liberia, the Kru resisted colonization efforts both from Europeans and later from the Liberian settlers. The first archaeological project in this region, the Kru Coast Heritage Initiative, conducted excavations from 2023-2025 of over 1000 artifacts related to this long history of wage labor and resistance. This paper investigates the nearly 700 of these artifacts which were ceramic pottery, the majority being Indigenous coarse earthenware. These ceramics, combined with historical and ethnographic evidence, are important sources of information about Indigenous maritime lifeways, diet, practices, and trade. They were used by men and women for preparing and storing food, carrying water, and processing palm oil. But they are also symbols of resistance through the lens of domesticity. Most of the ceramics unearthed come from domestic midden contexts and kitchen hearths, sites of intimate production, consumption, labor, and identity. Regardless of context, though, Indigenous ceramics are markedly more present and important than imported ones. As such, while they are not necessarily suggestive of a centralized resistance movement, they demonstrate the internal, domestic, even gendered, everyday practices of resistance carried out within households at a small site in Liberia, West Africa.

1639. INTERPRETING DOMESTIC SPACE USE OF AGRO-PASTORAL ETHNOGRAPHIC SETTLEMENTS IN BOTSWANA

Contribution format: Oral  
Contribution authors: Keelie Rix – Abel Ruiz-Giralt (Pompeu Fabra University) – Malebogo Mvimi (GAES Univ of the Witwatersrand) – Jordi Ibañes-Insa (Geo3bcn CSIC) – Stefano Biagetti (Pompeu Fabra University - ICREA)

This paper reports the initial results of an ongoing current investigation within the framework of the project CAMP (ERC CoG 2022, CAMP-101088842) which aims to investigate anthropogenic sediments of archaeological sites using portable X-Ray Fluorescence (p-XRF) that will allow for the generation of provide qualitative and quantitative geochemical data. The main objective of the implementation of p-XRF is to identify human activities through chemical signatures (anthropic markers) in the anthropogenic deposits from ethnographic settlements — inhabited and abandoned — and archaeological sites. By sampling known ethnographic sites some conclusions may be drawn on the expected elemental distributions of known use areas which may later be used to interpret patterns in ephemeral archaeological pastoral sites. The analytical setup involves analyzing hundreds of ethnographic samples from traditional agro-pastoral inhabited and abandoned BaKalanga sites collected in Maitengwe, (Northern) Botswana using the built-in calibrations of commercial pXRF devices (in this case the GeoExploration calibration implemented in the Bruker CTX portable benchtop analyzer). The results from these analyses will form the basis interpretation on what chemical patterns can be related to different activity areas within and around domestic spaces. A comparative study between the anthropic signals detected at active ethnographic settlements and uninhabited settlements may indicate how site abandonment can affect chemical signals.

1170. IDENTIFYING FINGERPRINTS IN THE PROTOHISTORY OF ASTURIAS (SPAIN): INITIAL CONSIDERATIONS BASED ON PALEODERMATOGLYPHICS IN THE CAMPA TORRES HILLFORT COLLECTION

Contribution format: Poster  
Contribution authors: Elena Lastra-Alonso (University of Oviedo) – Fernando Rodríguez Del Cueto (University of Oviedo)

Many spaces and daily activities during Prehistory have been influenced and were performed by women. Despite this fact, the search for information in this regard has not been a concern for traditional historical research. However, continuous scientific advances have occurred in recent decades thanks to the gender and women’s studies. Our only source of information about the prehistoric societies is the material culture, with many constraints to gather easily data for understanding the social complexities and dynamics of everyday life. Nevertheless, several scientific disciplines are currently being applied allowing us to overcome these limitations. In our research we use a very specific methodology: the analysis of paleodermatoglyphics. This method was applied to the Iron Age materials of Campa Torres hillfort, in Asturias (Spain). As is well known we can find paleodermatoglyphics in

different raw materials used as pigments or clay. Their analysis allows us to identify the owner of that fingerprint, making it possible to estimate their age and sex. This is a good way for a precise approach to daily activities associated with women and children: the so-called “maintenance activities”. Among them, ceramic or loom weights production as well as the building of houses using wattle and daub techniques, could leave traces of the use of fingers and, occasionally, fingerprints. Accordingly, with this proposal we seek to share the initial findings resulting from the assessment of the material analysed over the past two years of research. Thus far, this ongoing review has made it possible to examine a total of 3233 fragments of daub and 920 shards of handmade ceramics, which constitutes the number of remains analysed up to this point. The results obtained to date have been highly insightful, providing valuable date on the identity of the makers of these clay remains.

144 OPEN SCIENCE IN TEXTILE ARCHAEOLOGY EDUCATION: BRIDGING RESEARCH, OUTREACH, AND ENGAGEMENT

Session theme: 4. De nobis fabula narratur: archaeological practice and a profession in flux  
Session format: Workshop  
Session keywords: Textile Archaeology, Science Communication, Open Science Educational Resources, Museum, Open Access  
  
Session organisers: Margarita Gleba (University of Padua) – Hana Lukesova (University Museum of Bergen)  
Session speakers: Tereza Štolcová (Institute of Archaeology, Slovak Academy of Sciences) – Karina Groemer (Natural History Museum, Vienna) – Francisco Gomes (University of Lisbon) – Ronja Lau (Ruhr-University Bochum) – Islam Shaheen (Sapienza University of Rome) – Yaqi Yan (University of Padua) – Orsolya Zay (Institute of Hungarian Research, Eötvös Loránd University)

SESSION ABSTRACT

Textile archaeology provides unique insights into ancient cultures, economies, and technologies while broadening the accessibility of interdisciplinary knowledge. Interdisciplinary research has been fully integrated into archaeological textile studies for several decades, reaching topics such as environmental studies, ancient economics, and ancient innovations that contributed to today’s technologies. The education potential of textile history and archaeology is acknowledged by many textile researchers, who are often engaged in educational activities in museums, school classrooms, and public engagement events. While multiple resources on the science of archaeology in general and regional archaeologies exist, there are few that address textile archaeology. As part of its mission to contribute to open science through the sharing of data, tools, and methodologies, the EAA Community for Textile Archaeology and Conservation (ComTex) is proposing a workshop to share the best practices in textile archaeology science communication and to develop a suite of Open Science Educational Resources (OSER) for elementary, middle and high school students, by bringing together textile archaeologists, museum curators and educators from across Europe. The first part of the workshop will focus on identifying the drive stakeholders (who is the audience), and their specific needs. The second part will discuss the best practices in communication to non-academic audience, which may be useful in a museum, exhibition and public engagement event context (how to engage the audience). The third part will have three interdisciplinary groups of participants, consisting of diverse representatives in the fields of textile research, as well as colleagues from the EAA Communities, working to propose concrete activities for the three school age groups, including the lists of the resources necessary. The proposed strategies and resources will be trialed by the participants and interested engaged stakeholders following the EAA meeting and resources made available in Open Access if trials are successful.

145 STONE CLOCKS: DIACHRONY MARKERS AMONG HUNTER-GATHERER LITHIC ASSEMBLAGES

Session theme: 1. On artefacts and beyond  
Session format: Discussion session  
Session keywords: Hunter-gatherers, Formation processes, Temporal relationships, Lithic assemblages, Refits, Spatial analyses  
  
Session organisers: Santiago Sossa-Ríos (Universitat de València) – Alejandro Mayor (Universitat d’Alacant) – José Ramón Rabuñal – Diego Lombao (Universidade de Santiago de Compostela) – Javier Sánchez-Martínez (Interdisciplinary Center for Archaeology and the Evolution of Human Behaviour (ICArEHB))



SESSION ABSTRACT

Studying the archaeological lithic record has provided large amounts of data and interpretations on hunter-gatherer population lifeways. Typically, temporality in lithic studies is drawn from absolute dating methods of the stratigraphic units containing the assemblages. However, this approach does not consider the timespan differences between geological and anthropogenic processes, implying a vague image of human behaviours derived from the simple aggregation of artefacts. Despite this, lithic remains themselves hold the potential to generate intra-assemblage temporal frameworks based on their own features, and the information obtained from these high-resolution analytical frames has proved to be closer to the representation of their production dynamics, occupation patterns, or economic behaviours. In order to address this issue, this session seeks to highlight the value of lithic assemblages, not as static evidence of human activity but as cumulative records of behaviours, capable of informing on multiple dimensions of the temporality of hunter-gatherer practices. By focusing on the internal clockworks of lithic assemblages, this session will cover all the works based on lithic studies and hunter-gatherer groups, with the aim of investigating the temporal relationships in the archaeological record through methods applied on stone tools for the identification of diachrony. Therefore, we welcome contributions dealing with the relationship between hunter-gatherer lithic records, regardless of their chronology, and their spatiotemporal dimension. Topics of interest include lithic refitting or raw material unit analysis as a way to reconstruct production sequential activities; the role of recycling or reclaiming behaviours; the characterisation of technical shifts as potential markers of diachrony; the integration of lithic studies with archaeostratigraphic or spatial methods to refine units of analysis; the overlap of use-wear traces; or any other approaches focusing on the main topic.

CONTRIBUTION ABSTRACTS

2410. HIDDEN IN STONES: A DISCUSSION ON TEMPORAL CONCEPTS

Contribution format: Oral  
Contribution authors: Santiago Sossa-Ríos (University of Valencia)

The study of lithic assemblages has significantly contributed to our understanding of hunter-gatherer behaviour, yet the role of time in these analyses remains a persistent challenge. The disparity between geological and anthropogenic timescales results in a homogeneous view of past behaviours, masking the nuances of human action embedded in thousands of artefacts. This well-known problem has given rise to numerous methodological applications that have allowed us to reduce the palimpsest effect and the spatio-temporal scale of analysis. However, when these units of analysis are characterised and the events that make them up are related to each other, we risk conflating certain definitions when referring to “time”. Acknowledging this is crucial to reassess key concepts such as time itself, as well as others like synchrony, diachrony, and contemporaneity within the context of hunter-gatherer archaeology. An in-depth review of these notions not only enhances our understanding of temporal dynamics but also plays a fundamental role in preventing misinterpretations that may arise from an unbalanced reading between the lithic record and the resulting scale. This contribution aims to critically examine these concepts and their implications for lithic studies, advocating not only for methodologies that enhance temporal resolution in archaeological contexts but also for a broader ontological consensus on the nature of these temporal categories. In particular, we will focus on archaeostratigraphy combined with lithic variables as a means to explain these issues. By integrating approaches such as lithic refitting, raw material unit analysis, and archaeostratigraphy, and revisiting the different notions of “time” that can be extracted from various cases, we can move towards a more dynamic understanding of site formation processes. Addressing these issues will foster a more refined discourse on the role of time in lithic analysis, challenging static interpretations and enhancing our ability to reconstruct past lifeways while mitigating analytical biases.

1007. ACCESSING SPATIOTEMPORAL DYNAMICS IN LITHIC ASSEMBLAGES THROUGH INFORMATIC TECHNOLOGIES: HIGH-RESOLUTION ANALYSIS OF ABRIC ROMANÍ, MIDDLE PALAEOLITHIC, (CAPELLADES, BARCELONA, SPAIN)

Contribution format: Oral  
Contribution authors: Filippo Zangrossi (Institut Català de Paleoecologia Humana i Evolució Social (IPHES-CERCA) | Universitat Rovira i Virgili, Departament d’Història i Història de l’Art) – Diego Lombao (GEPN-AAT, Dpto. Historia, Facultade de Xeografía e Historia, USC | Centro de Investigación Interuniversitario das Paisaxes Atlánticas (CISPAC)) – M. Gema Chacón (Institut Català de Paleoecologia Humana i Evolució Social (IPHES-CERCA) | Universitat Rovira i Virgili, Departament d’Història i Història de l’Art | Seminari d’Estudis i Recerques Prehistòriques (SERP), Universitat de Barcelona | Institut d’Arqueologia de la Universitat de Barcelona (IAUB) | UMR7194-HNHP Histoire naturelle de l’Homme préhistorique, Museum National d’Histoire Naturelle(MNHN)) – Palmira Saladié – Josep Vallverdú (Institut Català de Paleoecologia Humana i Evolució Social (IPHES-CERCA) |

Universitat Rovira i Virgili, Departament d’Història i Història de l’Art | Unit Associated with CSIC, Departamento de Paleobiología, Museo Nacional de Ciencias Naturales(CSIC)) – Manuel Vaquero (Institut Català de Paleoecologia Humana i Evolució Social (IPHES-CERCA) | Universitat Rovira i Virgili, Departament d’Història i Història de l’Art)

Addressing the temporality of biological, social and behavioural processes remains a central topic in archaeological research. Traditionally, the diachronic relationship between humans’ activities has been established through sequences of stratigraphic units based on geological layers. However, due to their different timespan, geological level often encompasses a long series of anthropic activities, enhancing the necessity to develop new methodologies to discern the spatiotemporal dimensions of human processes. The study of the lithic technology allows researchers to bypass the low resolution of archaeological palimpsests applying a wide range of analyses, as vertical distribution, spatial analysis, refitting sequences, use-wear, recycling of stone tools, and post-depositional alterations, among other. In this context, information technology provides several instruments for high-resolutions analysis, from Geographic Information Systems (GIS) to 3D modelling and to Machine learning. In this study, we propose a novel approach based on the 3D technology to address the spatiotemporal dimensions in lithic assemblages. The aim is to investigate the accumulation patterns in terms of vertical distribution and superimposition of artifacts or groups of them. An automatic yet incomplete protocol is developed in the R statistical environment, combining 3D modelling, geometric and statistical analysis, and graph theory, to process spatial and technological information collected during the excavation and the analysis of the lithic record. The protocol is applied to Middle-Palaeolithic site of Abric Romaní (Capellades, Barcelona, Spain), specifically at the Level M, which dates to 54.5 ka BP. It shows the presence of a high number of lithic artifacts of different raw materials, especially with a high number of refits. This study highlights on one hand the high potential of information technology and statistics to develop new methods for the archaeological research, on the other hand the necessity of high-resolution analysis for the dissection of palimpsests and to address the temporality in formation processes.

668. FIRE-BRANDED OCCUPATION HISTORIES: EXPLORING SPATIOTEMPORAL PALIMPSEST FORMATION AND SITE OCCUPATION DYNAMICS THROUGH THE ANALYSIS OF BURNT LITHIC DISTRIBUTIONS

Contribution format: Oral  
Contribution authors: José Ramón Rabuñal (Universidade de Santiago de Compostela | Centro de Investigación Interuniversitario das Paisaxes Atlánticas (CISPAC)) – Javier Fernández-López De Pablo (Universidad de Alicante | Instituto Universitario de Investigación en Arqueología y Patrimonio Histórico (INAPH))

Fire alteration of archaeological remains is a common subject of interest in the study of hunter-gatherer sites, providing insights into key aspects such as the controlled use of fire, site structure, or the impact of wildfires. In particular, fire alteration of lithic remains has served as an indicator of various processes, ranging from post-depositional thermal alterations to recycling behaviours. From an intra-site spatial distribution perspective, burnt lithics —whether they were exposed to fire at the time of deposition or later— along with their relationship with preserved combustion features and other combustion-related evidence (e.g., burnt clasts, charcoal, rubefaction), serve as valuable proxies for identifying combustion-related events and defining activity areas. This work examines the Mesolithic Unit IV of the El Arenal de la Virgen open-air site (Alicante, Spain), characterized by two occupation phases (9.3–9.1 and 8.6–8.3 k cal BP) and well-preserved spatial properties, as a case study illustrating the potential of focusing on the distribution patterns of fire alteration in lithic scatters for understanding site formation processes and occupation dynamics. Moran’s I spatial autocorrelation analyses on the relative frequency of fire alteration in different artifact classes revealed evidence of latent hearths, dismantled combustion features, and asynchronous superimposed activity areas, highlighting the cumulative nature of the palimpsest. By interpreting these burning patterns within their spatial and behavioural contexts, we provide refined insights into site structure and occupation dynamics. These findings suggest that the site was subject to recurrent short-term reoccupations by small, highly mobile groups, rather than serving as a prolonged residential camp.

2358. EXPLORING IMPLICATIONS OF TECHNOECONOMIC VARIABLES ON REFINING SPATIOTEMPORAL FRAMES: A CASE STUDY FROM THE EL PASTOR ROCKSHELTER (ALCOI, EASTERN IBERIA)

Contribution format: Oral  
Contribution authors: Alejandro Mayor (Universitat d’Alacant) – Santiago Sossa-Ríos (Universitat de València) – Carolina Mallol – Cristo Hernández (Universidad de La Laguna)

Archaeostratigraphic and spatial approaches allow us to establish analytical frameworks that group measurable variables within a spatiotemporal scale closer to that in which past human behaviours developed. However, these frameworks may have certain intrinsic limitations due to various factors that must be considered, such as the density of the record used as a sample or the postdepositional processes it may have undergone throughout its history within the archaeosedimentary deposit. In this sense, utilising determinate information sources of a



technoeconomic or behavioural character can help to observe certain patterns that aid reaching a greater degree of confidence regarding spatiotemporal interpretations. To explore this idea, we examine here the case of Unit V of the El Pastor rock shelter (Alcoi, eastern Iberia), where an archaeostratigraphic and spatial analysis has been conducted based on its Neanderthal lithic assemblage. This study identified a knapping area characterised by the concentration of lithic refits of different types of flint. However, the temporal interpretation of this concentration was limited to indicating the recurrence of knapping events. In this communication, we aim to analyse this record through raw-material sourcing and lithic technology to assess whether a higher degree of differentiation can be established between the distinct knapping events represented by each refitting set.

1008. THE ROLE OF RESOURCE AVAILABILITY IN SHAPING LITHIC TECHNOLOGICAL BEHAVIOR: INSIGHTS FROM SAHB EL GHAR 3 (AÏN BENI MATHAR, MOROCCO)

**Contribution format:** Poster  
**Contribution authors:** Diego Lombao (Universidade de Santiago de Compostela, Grupo de Estudos para a Prehistoria do NW Ibérico -AAT | Centro de Investigación Interuniversitario das Paisaxes Atlánticas (CISPAC)) – Juan I. Morales (Institut Català de Paleoecologia Humana i Evolució Social (IPHES-CERCA) | Universitat Rovira i Virgili, Departament d’Història i Història de l’Art) – Hassan Aouraghe (Université Mohammed Premier) – María Soto (Madrid Institute for Advanced Study. Casa Velázquez | Universidad Autónoma de Madrid. Departamento de Prehistoria y Arqueología) – Mourad Farkouch (Institut Català de Paleoecologia Humana i Evolució Social (IPHES-CERCA) | Universitat Rovira i Virgili, Departament d’Història i Història de l’Art) – Hicham Mhamdi – Mohamed Souhir (Université Mohammed Premier) – Abdelkhalek Lemjidi (Institut National des Sciences de l’Archéologie et du Patrimoine (INSAP)) – Robert Sala-Ramos (Institut Català de Paleoecologia Humana i Evolució Social (IPHES-CERCA) | Universitat Rovira i Virgili, Departament d’Història i Història de l’Art) – M. Gema Chacón (Institut Català de Paleoecologia Humana i Evolució Social (IPHES-CERCA) | Universitat Rovira i Virgili, Departament d’Història i Història de l’Art | Seminari d’Estudis i Recerques Prehistòriques (SERP), Universitat de Barcelona | Institut d’Arqueologia de la Universitat de Barcelona (IAUB) | Museum National d’Histoire Naturelle (MNHN))

Sahb el Ghar 3, an open-air archaeological site discovered in 2018, is located in the Swiwina Plain, 15 km from Aïn Beni Mathar, Morocco. Spanning 8 km<sup>2</sup> on river alluvial deposits, the site is situated in a region rich in Neogene chalcedony, a resource extensively exploited during the Pleistocene. Lithic materials were systematically collected over a 20 m<sup>2</sup> area, precisely documented using a total station. The assemblage comprises 674 artifacts, primarily made on chert (673) with one limestone piece. Wide flakes, with platform thicknesses averaging 9–10 mm and simple platform preparation, dominate. Cortical flakes indicate the presence of early reduction stages, while retouched tools are scarce (n=2). The management of core convexities is evident through the presence of plunging and core edge flakes, complemented by rejuvenation flakes. The core assemblage highlights the application of flexible knapping strategies depending on the type of blank used (cryoclasts, blocks, and flakes). Initial testing cores on nodules or cryoclasts show unipolar or orthogonal strategies, while cores on smaller blanks show bifacial recurrent Levallois exploitation. Volumetric bifacial systems occasionally produced elongated products, though systematic laminar production was absent. Although direct dating is not available, the technological characteristics of the lithic assemblage and the absence of tanged points and bifacial foliate elements situate Sahb el Ghar 3 within the Middle Stone Age (North African Mousterian). This analysis highlights the interplay between resource availability and technological flexibility at Sahb el Ghar 3. Adaptive strategies relied on abundant local resources, minimal platform preparation, and the use of core edge flakes for convexity management, which are resource-intensive in terms of raw materials. The coexistence of Levallois, bifacial, and unipolar reduction systems demonstrates technological versatility, while limited retouch and opportunistic raw material use reflect a pragmatic, need-based approach, offering valuable insights into Middle Stone Age adaptive behaviors.

146 MULTI-DISCIPLINARIAN METALWORK: COMBINING ARCHAEOMETALLURGY WITH CULTURAL HISTORY

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Session with keynote presentation  
**Session keywords:** Archaeometallurgy, Experimental Archaeology, Metals & Metalwork, Multi-disciplinarian Studies, Typology & Technology, Wear & Tear  
**Session organisers:** Michael Neiß (Lund University: Department of Archaeology & Ancient History | Aarhus

University: UrbNet) – Sebastian Wärmländer (Stockholm University: Department of Archaeology & Classical Studies) – Olga Zagorodnia (The British Museum: Department of Scientific Research) – Elisa Maria Grassi (The National Research Council: Institute of Cultural Heritage) – Martin Miño (The Monuments Board of the Slovak Republic)

SESSION ABSTRACT

Archaeometallurgy is a multidisciplinary field, where researchers from different fields come together to answer a range of different questions related to ancient metalworking. While there are numerous ways to investigate metal objects, many breakthrough studies involve a combination of different approaches. This session aims to illuminate how one can combine the metallurgical analysis of ancient objects with other investigation strategies, such as typological analyses or historical studies, to clarify the cultural significance of artefacts. Our particular focus lies on the interplay between different practices: Does the original idea for your study derive from a historical text, from typological sequencing or from some unexpected observation that you made when you were analysing the material composition of ancient objects, examining their technical aspects, mapping traces of wear and tear or when you were replicating something by experimental means? And, in what way does this original observation generate the need for a multi-approach that bridges different disciplines. As the aim of the session is to provide instructive examples of the interplay between different means of investigation, our session welcomes papers concerning all time periods and regions. Furthermore, we encourage contributions from advanced students and young researchers. EAA Session #146 will be held in a hybrid format at regional meeting hubs across Europe, combining the benefits of both in-person and digital participation. Contact the session organiser to set up your own meeting hub in collaboration with ARCMET.

CONTRIBUTION ABSTRACTS

2515. KEYNOTE: DECODING SLAG: INSIGHTS INTO IRON SMELTING AND FORGING FROM EXPERIMENTAL AND ARCHAEOLOGICAL DATA

**Contribution format:** Oral  
**Contribution authors:** Ragnar Saage (University of Tartu)

Most archaeologists working in the field or archaeological collections have come into contact with slag – a common byproduct of ironworking. However, it is not always easy to identify the process it originates from, especially for people who are not specialised in archaeometallurgy. In order to provide helpful insights to all the aforementioned people, this keynote presentation will examine various aspects of slag, with a focus on slag produced during bloomery iron smelting and forging. In line with the session’s theme, experimental, analytical, and archaeological data will be integrated to gain deeper insights into past iron smelting practices and the decisions made by smelters and smiths. The first part of the presentation will highlight the significance of slag in bloomery iron smelting, exploring its formation and structure. Experiments with different bog ores from Estonia have consistently shown that the key factor in the smelting process is the ability to control the formation of liquid slag within the furnace. Next, the challenges of distinguishing smelting slag from smithing slag will be discussed. While the formation processes of these slags differ, chemical analyses often reveal them to be compositionally indistinguishable. Consequently, the shape of the slag, which is influenced by the cavity in which it solidified, may serve as a more reliable distinguishing factor. This will lead to an examination of furnace and forge designs. Finally, the presentation will explore advanced methods for maximizing the informational value of slag through metallographic and elemental analyses. Metallographic analysis provides insights into the conditions under which slag formed, while a combined approach using SEM-EDS, LA-ICP-MS, and statistical analysis enables provenance studies. This will be illustrated through a recent study covering most of Estonia, offering a model for provenance analysis in relatively flat landscapes with diverse bedrock geology.

2521. KEYNOTE: CAN QUANTITY MAKE UP FOR QUALITY? TRENDS IN THE MATERIAL COMPOSITION OF NON-FERROUS METAL ARTIFACTS IN SOUTH MORAVIA (CZ) FROM A DIACHRONIC PERSPECTIVE

**Contribution format:** Oral  
**Contribution authors:** Matej Kmosek (Institute of Archaeology of the Czech Academy of Sciences, Brno)

This keynote lecture explores changes in metal production and use in South Moravia (Czech Republic) through a long-term perspective, emphasizing the value of large-scale scientific analysis in archaeology. The findings help us understand how metal artifacts were made, what materials were used, and how these changed over centuries. They also contribute to broader discussions on historical metallurgy beyond the region. By analyzing the elemental composition of non-ferrous metal artifacts, researchers can track long-term developments in metalworking. This presentation introduces a dataset of over 12,500 measurements taken using portable X-ray fluorescence (pXRF), a non-destructive method that allows for quick analysis of metal objects. The artifacts examined come



from metal detector surveys and date from the Eneolithic period to the Modern period. This extensive dataset provides valuable insights into how the composition of metal objects evolved over time. The main goal of the study is to identify patterns in the use of metal alloys and trace elements within a specific region. The results reveal both expected and surprising trends, including changes in copper alloy use and the influence of new technologies and trade networks on metal composition. A key aspect of the research is comparing pXRF surface measurements with more precise methods, such as bulk energy dispersive X-ray fluorescence (ED-XRF) and inductively coupled plasma mass spectrometry (ICP-MS) analysis. This comparison helps assess how reliable pXRF is for studying archaeological metals, weighing the advantages of a large dataset against the higher accuracy of laboratory-based techniques.

457. TIN AGE: THE PREHISTORIC CASSITERITE MINING AND BRONZE PRODUCTION IN EAST KAZAKHSTAN

**Contribution format:** Oral  
**Contribution authors:** Evgeny Vodyasov – Olga Zaitceva (East Kazakhstan technical university)

Our report will focus on the features of the East Kazakhstan center for prehistoric tin mining and bronze production. The research combines archaeological and landscape 3D scanning methods to investigate ancient tin mines and geochemical methods (XRF, SEM-EDS) for metallurgical analysis of Bronze Age objects, ores and slags. We will present new data and briefly discuss three aspects. The first question is related to the chronology of the emergence of tin metallurgy and identifying the traces of mining activity in the earliest period. The next problem is related to the calculation of mining volumes. Discoveries and results of three-dimensional scanning of mines allow us to call East Kazakhstan one of the largest centers of cassiterite mining in the world, but it is difficult to reconstruct the actual volumes of tin mined accurately. Finally, we would like to discuss the non-linear development of alloying techniques. New XRF and SEM-EDS investigations of slags, ingots, bars, metals, and ore samples have revealed a complex picture of metallurgical traditions that do not fit evolutionary models. Our preliminary results show that the Bronze Age alloying techniques did not develop linearly, replacing one another, but existed synchronously within one epoch and even one workshop.

605. UNVEILING ORIGINS OF BRONZE AGE COPPER AND TIN: CHEMICAL AND ISOTOPIC INSIGHTS FROM THE PALACE AND ROYAL TOMBS OF QATNA

**Contribution format:** Oral  
**Contribution authors:** Daniel Berger (Curt-Engelhorn-Zentrum Archäometrie Mannheim) – Simon Herdt (Pfahlbauten-Museum Unteruhldingen) – Peter Pfälzner (University Tübingen) – Andreas Wittke – Ernst Pernicka (Curt-Engelhorn-Zentrum Archäometrie Mannheim)

As part of the Collaborative Research Center 1070 at the University Tübingen, c. 60 copper-based metal artefacts from the renowned Bronze Age settlement of Qatna (Tell Mišrife), Syria, have been analysed using a combination of chemical and lead, copper and tin isotope analysis. The majority of these objects originates from two tombs in the Royal Hypogeum, Nos. I and IV, located within the palace, and primarily comprises spearheads and arrowheads, along with various objects from other contexts in the palace. Most artefacts consist of bronze with more than 5% tin and low lead contents below 0.2%. The copper used is exceptionally pure with arsenic being the only element present at elevated concentrations. Within the inventory of the tombs, there are groups of objects exhibiting highly similar chemical patterns, which are also reflected in isotopic clusters of lead and copper. Some data suggest a production of several artefacts from the same batches of metal, while other indicate the use of specific metal stocks. The high number of objects of the same type and with identical or very similar composition may indicate their exclusive production for funeral purposes rather than originating from everyday use. The copper isotope composition varies significantly, indicating the use of a wide range of mineral species. Lead isotope ratios largely correspond to those of Anatolian and Greek copper mineralisations, though additional sources were also used, possibly including the Deh Hosein copper-tin mine and mines in Cyprus. Tin isotope compositions vary as well, with distinct clusters being indicative of different tin sources used for specific groups of objects. While the exact location of the tin mines remains unidentified, comparisons with data of earlier and contemporary artefacts from the broader region are proving insightful.

1137. THE CRUCIBLE OF FIRE: THE DEVELOPMENT OF METALLURGICAL CERAMICS IN THE BRONZE AGE AEGEAN

**Contribution format:** Oral  
**Contribution authors:** Magda Giannakopoulou – Athina Nikolopoulou (University of Athens, Department of Archaeology)

The exploitation of metals began in the Aegean as early as the end of the Neolithic period. Fragments of metallurgical ceramics and specifically crucibles, related to smelting, have been dated as early as the 5th mil. BC at

Promachon-Topolnitsa at Serres, in Northern Greece. During the Early Bronze Age, smelting was mainly conducted in ceramic furnaces, such as the characteristic conical or bowl-shaped furnaces of the Cyclades. On the other hand, crucibles were used mainly in secondary processes, such as melting or alloying, at numerous sites such as Kastri or Daskaleio in the Cyclades. Although typologically crucibles of primary and secondary processes can be similar, the analytical examination of the ceramic body and the attached slag can shed light into this question. In the following periods of the Middle and Late Bronze Age crucibles have been located in various, such as Lefkadi on Euboea and Ag. Stefanos in the Peloponnese. This paper aims to study the use of metallurgical ceramics in the prehistoric Aegean, by focusing on changes in their typology and affiliated processes throughout the Bronze Age and among the different areas, investigating both the technological choices and the intertwined social aspects of the Aegean communities, that lead towards rejection, preservation, adaptation, or innovation.

182. A PALIMPSEST OF METAL PRODUCTION: JAFFA FROM ANCIENT TIMES TO THE EARLY 20TH CENTURY

**Contribution format:** Oral  
**Contribution authors:** Matasha Mazis (Technical University of Darmstadt) – Alexander Fantalkin (—)

This paper synthesises field research, textual sources, and archaeometric data to examine the development of local metal production in the Eastern Mediterranean port city of Jaffa throughout its documented past. Recent archaeometric studies have revealed evidence of different types of metalworking in the ancient urban complex dating from the Bronze Age to the early modern period. Combined with archaeological and textual analyses, Jaffa’s industrial history can now be contextualized within the broader regional dynamics. We examine key questions such as the timing and nature of the metalworking activities, the scale of production—whether for local consumption or export—and the technological developments and continuities over time. We approach Jaffa’s metallurgical story as a type of ‘palimpsest,’ with successive layers of activity and transformation—from its role in Phoenician trade networks, to its integration into the industrial and urban growth of the early 20th century—reflecting both continuity and change in the city’s metal-working practices.

2205. IN THE FOOTSTEPS OF ANCIENT MINERS: EXPERIMENTING WITH BONE MINING TOOLS AT GREAT ORME MINES, UK

**Contribution format:** Oral  
**Contribution authors:** Olga Zagorodnia (British Museum) – Harriet White (Great Orme Mines)

Bone tools are found in the toolkits of mining sites over a wide area during the Bronze Age and are often linked to ore mining. This study examines bone tools used at the Great Orme copper mines in North Wales, a significant Bronze Age site that was mined approximately 3000 to 4000 years ago. Over 35,000 bone tools, fragments, and flakes have been recorded at Great Orme, with cattle bones being the most common. Most of these tools were made from ribs and long bones. A total of 650 well-preserved samples were analysed microscopically, with three analysed by micro XRF. At least five functional types of tools were identified. The tools considered here include those used for mining (around 80% of the study sample). Human and non-human modifications causing fractures and surface damage were observed. These include impact notches, flake scars, cut marks, polish, single or grouped scratches and grooves, pits, and microsteps. Use-wear observations were confirmed by experimental data. The experimental work involved creating tools from cattle long bones and ribs – boiling, defleshing, fracturing, and splitting them; fire setting to soften the rock; and using pointed and rib tools in mining activities, including splitting rock and scraping. The results of the experiments allowed us to develop diagnostic criteria for identifying common manufacturing modifications and use-wear features in artefacts used for ore mining. It was found that bone pointed tools are as effective as metal ones, though they were used primarily on softer rock. Additionally, negative impressions left in the rock from tool use were recorded, providing reliable and effective comparisons to the Bronze Age tool marks preserved at Great Orme Mines. The comparative information presented here is of great value for the study of bone tool collections and mining activities at other prehistoric mining sites across Eurasia.

2111. A THOROUGH LOOK AT THE BRONZE ARTEFACTS. AN ATTEMPT FOR CLASSIFICATION OF METAL ARTEFACTS FROM HALLSTATT PERIOD USING LIBS

**Contribution format:** Oral  
**Contribution authors:** Corina Bors (National History Museum of Romania) – Monica Dinu (National Research Institute for Optoelectronics INOE2000)

The objects discovered by archaeological excavation and field research can originate from different geographical areas, being brought by long-distance trade, or because of exchange of prestigious gifts or (less often) migrations of ancient groups of populations. Thus, certain such objects may have (at first glance) a similar appearance, and (sometimes) even close chemical composition (the same chemical elements, in similar proportions). This study is focused on discrimination of the metal archaeological objects, which are typologically similar, using



multivariate analysis on the spectral data obtained mainly by Laser Induced Breakdown Spectroscopy (LIBS). The spectral data obtained were processed using advanced methods of statistical analysis and then grouped according to similarities, in this manner obtaining a detailed classification of the objects extracted by archaeological excavation (or from other random discoveries) based on the elemental composition of the original material. The archeological objects discussed in this study belong to a very important discovery made a decade ago, in Romania, Transylvania region, on sites located on the middle Mureş Valley at Tărtăria – Podu Tărtăriei Vest (the hoards Tărtăria I and Tărtăria II). Based on the preliminary studies, considering the materials they are manufactured of, they are grouped in 2 major categories: bronze artifacts – torques, „glasses type” brooches (fibulae), other various types of brooches (fibulae), various type or bracelets, phalerae – most probably costume accessories, phalerae – harnesses accessories etc. and iron artifacts – weapons and tools. For the moment, the two bronze and iron hoards uncovered by preventive archaeological excavation at Tărtăria (Alba County, Romania) remain the largest assemblages from the Middle Hallstatt period and raise a series of questions about the provenance of certain artefacts, thus “traditional” study and non-invasive investigations were made in order to understand better the structure, meaning and origin of these votive (?) metal finds.

**1054. WIELDING THE SWORD: METAL, BONE AND IVORY CRAFTSHIP AND THE VALUE PLACED ON WEAPONS IN IRON AGE IBERIA**

**Contribution format:** Oral  
**Contribution authors:** Marta Blasco Martín (Universitat de València. Departament de Prehistòria, Arqueologia i Historia Antiga) – Lucía Soria Combadiera (Universidad de Castilla La-Mancha. Departamento de Historia, Área de Prehistoria) – Marianne Christensen (Université Paris 1 Panthéon-Sorbonne) – Consuelo Mata Parreño (Universitat de València. Departament de Prehistòria, Arqueologia i Historia Antiga)

In this paper, we present the results from the project Attaching and decorating: Sword hilts in the Iberian Age (CIGE/2023/76. Conselleria de Educació, Cultura, Universidades y Empleo. Generalitat Valenciana, Spain), which focuses on the study of sword hilts recovered from the eastern seaboard of the Iberian Peninsula between the 5th and 3rd centuries BC. The remains of the hilts in question were made from hard animal materials and were often decorated with vegetal and geometric motifs created by inlaying metal threads into the material. Given that these composite pieces were made by combining different raw materials (iron, bronze, bone and/or ivory), they had to be analysed using multiple approaches: macro and microscopic exploration, archaeological drawing, archaeometric analysis, radiological study and contexts of discovery (settlements or necropolises). We reflect on the people who made these pieces and the high degree of craftship required for their production (metallurgical craftspeople), as well as on the socioeconomic status of the individuals who wielded them. Swords from the Iron Age II Period that preserve the remains of bone or ivory handles are limited in number and speak of shared craftship, valuable raw materials and status linked to warfare. Some of the questions we seek to answer are: do the hilts have formal similarities between them? What value did their bearers place on them? And lastly, why do they predominantly appear in funerary spaces?

**495. BRONZE COINAGE OF ELEA/VELIA: INVESTIGATING METAL PROVENANCE THROUGH GEOCHEMISTRY AND LEAD ISOTOPES**

**Contribution format:** Oral  
**Contribution authors:** Isabella Ercoles (La Sapienza University - Department of Earth Sciences | CHNet, INFN-LNGS)

This study investigates the geographic provenance of 100 bronze coins from the Greek colony of Elea/Velia (Southern Italy), dating from the 4th to the 1st century BC. Chemical and lead isotope analyses were conducted at the CHNet of the Laboratori Nazionali del Gran Sasso-INFN using ICP-MS and TIMS techniques. The aim of this research is to investigate the major elements (in wt%) and trace elements (in ppm) in coin alloys, alongside lead isotope ratios, to establish a reliable metal provenance and explore the geochemistry of the associated mining districts. Ternary diagrams, used to visualize major element concentrations (in wt%) across four distinct coin emissions, reveal consistent trends: Cu ranges between 100% and 75%, Pb remains mostly below 20%, and Sn is consistently under 10%, with Athena/Tripod samples showing near-zero Sn levels. Exceptions include two coins which exhibit lower Cu (~50%) and higher Pb (~40%). Sn proves to be the most discriminating element among the emissions. For trace elements (2% of the total alloy), multi-element diagrams, commonly employed in geological studies, were experimentally applied. Normalized to continental crust values, concentration patterns align with lead isotope-based provenance assignments and show similar trends for the main mining districts of Aegean Greece and southern Spain. A key distinction is the higher variability in Greek deposits, particularly in Zn, and to a lesser extent, Co, Ni, As, Ag, and Sb. My research demonstrates how archaeometallurgical techniques can supplement numismatic and archaeological methods to reconstruct ancient socio-cultural networks and economic interactions, such as metal supply sources and trade routes, in the Mediterranean area.

**1948. FORGING CONNECTIONS: ARCHAOMETALLURGICAL CHARACTERIZATION AT THE PHOENICIAN SITE OF CERRO DEL VILLAR (MÁLAGA, SPAIN) IN ITS REGIONAL CONTEXT**

**Contribution format:** Oral  
**Contribution authors:** Carmen Alañón – Xosé-Lois Armada Pita (Institute of Heritage Sciences (Incipit-Csic)) – Ignacio Montero Ruiz (Institute of History (Cchs-Csic)) – José Suárez Padilla (University of Malaga) – Pau Sureda (Institute of Heritage Sciences (Incipit-Csic))

The abundance and variety of metalliferous resources in the Iberian Peninsula have been extensively documented, with evidence of their early exploitation dating back to the 5th millennium BC. However, from the 9th and 8th centuries BCE onwards, metal production experienced a significant increase, coinciding with the interactions between local communities and Phoenician settlers. These contacts enabled technological adaptations for the new demands of intensive exploitation. Within this context, new metallurgy innovations have been recorded in the first Phoenician colonies established on the Bay of Málaga, such as La Rebanadilla and Morro de Mezquitilla. This practice extended to native communities like Acinipo or Castillejos de Alcorrín. In the 8th century BCE, the Phoenicians founded Cerro del Villar, one of the largest colonies in southern Iberia, located on an island surrounded by the estuary of the Guadalhorce River (Málaga). This settlement plays a key role in understanding Phoenician colonization dynamics and their interactions with local communities in the Málaga hinterland. Results of elemental and isotopic composition analyses of copper- and lead-based objects, production remains and Pb-Zn-Ag rich ores are presented in this study. Samples were collected during the new archaeological fieldwork at Cerro del Villar (2022–2024), as well as the prospection campaign in the mines of Llano de la Plata (Alhaurín de la Torre, Málaga). The new excavations are being conducted by an interdisciplinary team led by the University of Málaga and including contributions from Spanish universities (Seville, Cádiz, Córdoba, and Jaén) and international institutions (Marburg, Germany; Chicago, USA). Archaeometallurgy research is being carried out within the framework of the MedAtMetals Project (INCIPIT-CSIC). This research offers new insights into metallurgical interactions between Phoenicians and local communities in southern Iberia during the first millennium BCE, contributing to a better understanding of the colonial historical process.

**586. MATERIALS CHARACTERIZATION OF COPPER CAST COINS FROM TEKTTHA, NAOGAON, BANGLADESH, USING WDXRF AND SEM-EDS: A WINDOW INTO EARLY HISTORIC COINAGE**

**Contribution format:** Oral  
**Contribution authors:** Tamanna Jahan (University of Ferrara) – Sabiku. Naher (Jahangirnagar University) – Bulbul Ahme. (Jahangirnagar University) – S.M. Tareque Abedin (Jahangirnagar University)

The present research integrates the numismatics and archaeometallurgical studies of sixteen copper coins from Tekttha, a recently discovered early historic site in Parshim Raghunathpur, Porsha Upazila, Naogaon, Bangladesh. The study encompasses typological classification, chemical composition, and minting processes. Numismatic attributes such as shape, weight, dimension, and symbols indicated that the analyzed coins belong to the earliest uninscribed cast copper coin classes, which were circulated from the 3rd century B.C. to the 1st century A.D. The elemental analysis using wavelength dispersive X-ray fluorescence (WDXRF) spectroscopy shows extremely high chemical and mineralogical homogeneity in selected studied coins, which have more than 90% copper content. Sn and Zn were found, traces of common alloying elements, which are indicative of very limited or no alloying. In contrast, P, Ca, As, Cl, K, and Mn are probably due to soil contamination. However, the presence of sulphur and iron suggests that sulphur-rich copper ores, such as chalcopyrite, possibly have been used. To further investigate the metallography and surface modifications of coins studied, scanning electron microscopy coupled with energy dispersive spectroscopy (SEM-EDS) was employed. SEM images of selected coins show homogeneous metallic cores with lead phases and corroded holes. The α-copper grain structure indicates proficient casting and cooling techniques by the minting authorities. The absence of twin-grain structures suggests that symbols were engraved through a cold working process. Beyond metallurgical characterization, this study demonstrates the value of integrating scientific and typological analyses to reconstruct ancient coin-making practices. By bridging archaeometallurgical data with numismatic classification and historical context, this research underscores the need for a multidisciplinary approach to better understand early monetary systems and technological choices in Bengal.

**329. DISCOVERY OF RESIDUAL SURFACE TREATMENT ON A KNEE FIBULA: FIRST EVIDENCE OF THE SILVER DEPLETION TECHNIQUE BEYOND THE NORIC-PANNONIAN LIMES?**

**Contribution format:** Oral  
**Contribution authors:** Cenek Foucek (Institute of Archaeology of the Czech Academy of Sciences, Brno)

This study presents the discovery of a residual silver-like surface layer on a Germanic knee fibula from the second century AD. The observed layer is hypothesized to result from depletion silvering, a technique in which base



metals are selectively leached from a silver-copper alloy, leaving behind an enriched silver surface. To test this hypothesis, an experimental approach was undertaken. Samples with the same composition as the fibula were subjected to a series of etching processes using vinegar, a commonly available acidic agent in antiquity. The experiment successfully replicated a silver-enriched layer, demonstrating that silver depletion techniques could have been used outside the Roman Empire. To analyze the material composition and surface modifications, tabletop XRF was used to determine the alloy’s elemental composition, while SEM-EDS provided high-resolution documentation of the silver-enriched surface layer. Additionally, CIELAB color space measurements were conducted to quantify the color difference between the original alloy and the silver-enriched surface, objectively assessing the visual changes resulting from the depletion process. This finding provides new insights into Roman-period metalworking techniques and suggests the possibility of a broader application of silver depletion methods beyond Roman coinage production.

**278. CERRO DE LOS ALMADENES, SEGOVIA, SPAIN: FIRST RESULTS OF THE METALLURGICAL LATE ROMAN SITE**

**Contribution format:** Oral  
**Contribution authors:** Anna Sdralia – Mercedes Murillo-Barroso (University of Granada) – Juan Álvarez-García (Autonomous University of Madrid) – Mariano Ayarzagüena-Sanz (University of Castilla-La Mancha) – Gonzalo Lozano (Geological and Mining Institute of Spain (IGME, CSIC))

Cerro de los Almadenes, located in Segovia, Spain, stands as a significant metallurgical site from the Late Roman period, distinguished by the excavation of ten metallurgical furnaces arranged in two NW-SE rows of five furnaces each. The rows are seven meters apart from one another, while the furnaces are separated between them by a distance of 2.4 meters. Remarkably enough, both rows were built symmetrically. Furthermore, grinding stones, fragments of broken furnaces, and different types of slag are evident both in excavated layers and on the surface levels. The nearby slagheap indicates the great production of the site, the size of which by the end of the 19th century was estimated of approximately 560.000 tons of metallurgical slag. The site has a continuous use from the Roman period to the Late Roman period, and the slag remains seem to belong to both periods. Macroscopic and typological studies prove to be limited, hence we decided to apply analytical techniques to address the technological characteristics and the different possible productions taking place in the Cerro de los Almadenes. This study examines 122 metallurgical remains, including slag, furnaces and grinding stones, to elucidate their technological characteristics of the site. Employing X-ray fluorescence (XRF), optical microscopy, and scanning electron microscopy (SEM), we analyze the microstructure and chemical composition of these metallurgical remains. The results aim to shed light on the metallurgical practices and technological changes employed at Cerro de los Almadenes, contributing to a deeper understanding of the copper production and processing during this transitional period.

**1126. A WARRIOR OR A METALLURGIST? ON THE INTERPRETATIONAL POSSIBILITIES OF ARCHAEO-METALLURGY COMBINED WITH PHYSICAL ANTHROPOLOGY**

**Contribution format:** Oral  
**Contribution authors:** Martin Mino (Monument Board od Slovak Republic) – Jozef Petrík (Technical University Košice) – Marta Ďuricová (Stredoslovenské múzeum Banská Bystrica) – Eva Petrejčíková – Jana Gaľová – Soňa Kalafutová (University of Prešov) – Peter Ďurica (Municipality of Letanovce)

The Avar Khaganate was a decisive political power in the heart of Europe during the early Middle Ages. Inside the archaeological context, it is renowned for the graves of archers, often with their mounts. They define the culture as an image of a roaming horse-archer warrior in popular narratives. Recent DNA analyses of whole burial sites have pushed the knowledge of the culture much further. They contribute not only to the question of physicality but also to cultural inheritance and broader relationships. Yet there is a chance that archaeo-metallurgy, in cooperation with physical anthropology, might still have some news to ring. These would affect both the technological level and the similarities between the social and cultural levels, too. Can they even stir the popular warrior narrative? The paper tries to answer via the evaluation method of the physical features of a buried armed individual and archaeo-metallurgical analysis of his accoutrements together with the slags from his surroundings. Confrontation of the results with other data in a broader spatial and chronological frame might bring some answers on the possibility of wider application.

**1849. GEOCHEMICAL TRACING OF VIKING IRON AND THE MIGRATION PATTERNS OF NORSE POPULATIONS CROSS THE NORTH ATLANTIC**

**Contribution format:** Oral  
**Contribution authors:** Jean Milot – Thomas Birch – Rasmus Andreasen – Christian Tegner (Aarhus University, Department of Geoscience, Denmark)

Iron was a crucial resource in Viking society, essential for crafting everyday tools, durable weapons, and rivets for shipbuilding. This metal is therefore intrinsically linked with the migration of Scandinavian populations and the expansion of Norse culture. The availability of iron and expertise in its metallurgy were vital concerns of the time, raising important questions about the sources of iron for Norse settlements, and its circulation across the Baltic and North Atlantic regions. The prevailing model suggests that Viking iron was almost exclusively produced in the Scandinavian homelands, with its distribution extending to all other Norse territories. However, the discovery of numerous Viking Age iron production sites in Iceland, with an output exceeding local needs, challenges this model and indicates a more complex production and distribution. By combining archaeometallurgy and geochemistry, the MSCA VIPICE project aims to identify the distinct signature of Viking iron production in Iceland compared to wider Scandinavia and to investigate its circulation across the North Atlantic region. Preliminary results indicated a clear difference in the elemental composition between smelting slags from Iceland and Scandinavia, and less radiogenic Sr isotope signature in the Icelandic slags. Subsequently, our results show that the trace element composition of slag inclusions trapped in Icelandic iron blooms matches that of Icelandic slags, which confirm the specific signature of iron from this territory. Based on typological observation, trace elements and Sr isotope analyses will be conducted on iron artefacts used locally to further distinguish iron from Iceland and Scandinavia. This multi-proxy approach will then be applied to archaeological objects brought to Norse settlements in Greenland and Newfoundland to investigate the presence of Scandinavian or Icelandic iron. Integrating archaeology and Earth sciences, this multidisciplinary project will offer valuable insights into the iron trade networks and migration patterns of Norse populations across the North Atlantic.

**1783. PXRF ANALYSIS OF A VIKING AGE HOARD OF BROOCHES FROM ŠLIKTINĖ, LITHUANIA: COMPARING THE SURFACE TO THE MECHANICALLY CLEANED CORE**

**Contribution format:** Oral  
**Contribution authors:** Egle Rimkiene (Kretinga museum) – Marcus Roxburgh (Insitute of Baltic Region History and Archaeology, Klaipėda University)

In 1971, one of the largest Viking Age hoards of metal artefacts ever found in Lithuania was discovered near the outskirts of the small village of Šliktinė. The discovery was made accidentally during soil excavation in the marshy valley besides a small stream. In total 82 artefacts dating to the 9th–10th centuries AD were recovered during the subsequent archaeological survey. The assemblage includes brooches, bracelets, belt fittings and buckles, then also iron weapons such as daggers, swords and spearheads. Current research supports the hypothesis that the marshy valley at Šliktinė possibly served as a place for ritual deposition, where the artefacts were deliberately sacrificed in wetland environment. Until now, the artefacts from the Šliktinė hoard had not been examined using portable X-ray fluorescence spectrometry (pXRF). For this study a selection of 37 brooches was made. We then deployed pXRF firstly in a non-invasive exploration of the chemically altered outer surfaces. Then 10 of the brooches were selected and mechanically cleaned, so that measurements of the cores could be taken. The analyses revealed significant differences between the corroded outer surfaces and the original compositions. This comparison offers the opportunity to better interpret original Cu-alloy composition from objects deposited in acidic, low oxygen wetland environments. Also as a result of this analyses, some differences and similarities in metal composition were observed according to brooch typology. This analysis provides a multi-disciplinary perspective on Viking Age brooches discovered in the Šliktine hoard.

**1193. INTERTWINING PATHS. THE CASE STUDY OF THE PREGOLA RELIQUARY AND THE ROLE OF ARCHAEO-METALLURGY IN UNRAVELLING EARLY MEDIEVAL TRANS-EUROPEAN CONNECTIONS**

**Contribution format:** Oral  
**Contribution authors:** Elisa Grassi (CNR - Institute of Heritage Science) – Conor Newman (University of Galway) – Eleonora Destefanis (Università del Piemonte Orientale) – Cormac Bourke (Independent) – Anna Gannon (St Edmund’s College, University of Cambridge)

The research project presented here, still in its early stages, started with the recent discovery of an early medieval reliquary of Irish manufacture in Italy, not far from the Bobbio abbey where St. Columbanus is buried. Comparable artefacts from Italy are extremely rare, and none comes from an archaeological site. The object is a composite piece comprising metal plates and decorative components attached to a yew box. The research approaches it from several perspective, including liturgy, art history and a comprehensive archaeometallurgical investigation, trying to retrace the complex sequence of modifications, and addressing a range of questions



concerning where, when and why these alterations to the structure and appearance of the reliquary occurred. The data provided by these investigations will help in shedding light upon relevant cultural topics, in particular that of cultural transfer in an age of transition: despite the political fragmentation of Early Medieval Europe, the Mediterranean regions remained connected with the areas on its northern shores. Christianity was one of the main elements that united north, south, east and west in these formative centuries, propelled by the movements of saints, pilgrims, relics and treasures. Material goods and immaterial objects (among which the relics and the cult of saints) were constantly transferred between these areas, sometimes in modified form. Researching the origins of the transferred elements and the process of transmission that linked the different areas and cultures will provide elements to further our understanding of such a complex cultural-historical context.

332. EARLY MEDIEVAL IRISH RINGED PINS: A CASE STUDY

**Contribution format:** Oral  
**Contribution authors:** Julie Perez (UCD School of Archaeology | UMR 5608 - TRACES- TERRAE, Université Toulouse 2 Jean Jaurès)

Ring pins or ringed pins are common metal dress fasteners in Early Medieval Irish material culture, and their use throughout pre-and Viking Age Ireland offers a fascinating case study to explore various aspects of the past, particularly metallurgy practices and the production processes of copper-alloy artefacts. These objects provide a valuable lens through which to examine cultural transfer, the evolution of production techniques, and the stylistic changes that occurred over time. This pilot study seeks to characterise the production traces found on ringed pins to gain a deeper understanding of how these objects were made. By integrating macro- and micro-observations with experimental archaeology, the research investigates the manufacturing techniques of a copper-alloy, unfinished loop-headed pin found at Moynagh Lough, a pre-Viking habitation site. This project contributes to broader archaeological discussions surrounding artefact production processes, skill transmission, and the lived experiences of ancient societies. Using experimental archaeology, this study not only reconstructs technical practices but also broadens perspectives for exploring the relationship between material properties, craftsmanship, and societal organisation in early medieval Ireland. My research is based on an interdisciplinary methodology to replace the artefacts in their historical and geographical contexts, tracing their evolution through time and space. Understanding the relationship between the Irish and the Scandinavians is primordial to appreciate the context of production centres of this period. This presentation will highlight the initial findings of my PhD research.

1518. DAMAGE AND REPAIR OF SCANDINAVIAN MIGRATION PERIOD BRacteATES

**Contribution format:** Oral  
**Contribution authors:** Nancy Wicker (University of Mississippi)

Many of the over 1000 Scandinavian gold bracteates of the Migration Period (5th–6th century CE) have been damaged and repaired. These small (approx. 2–3 cm diameter) disks, originally based on Roman medallions, were made by striking with a one-sided bracteate technique rather than as a typical two-sided coin. The resulting objects are thinner than Roman-type coins, and each typically had an edge wire soldered onto the rim of the piece both to strengthen and further decorate it. Each had a loop soldered onto the gold disk so that the bracteate could be suspended on a cord or chain for use as an amulet or marker of identity. These loops and edge wires of bracteates often were damaged or lost. In this paper, I will examine correlations of bracteate damage and repair with various typological or iconographic features, and also with various find contexts. Repairs of bracteates most often consist of extra plates or patches that serve as reinforcements on the reverse of the attachment of the suspension loops. Such repairs do not affect the visibility of the imagery on the obverse of the pieces, and a somewhat damaged or worn bracteate could have been considered still “functional” and worth repairing. Yet some heavily damaged examples must have been melted down to make new, more fashionable ornaments. In particular, I have observed that bracteates discovered in hoards often are nearly pristine, whereas those discovered in burials frequently reveal careful repairs.

1051. WEAR AND TEAR? OR SIMPLY THE WAY IN WHICH BRACELETS ARE MEANT TO BE WORN

**Contribution format:** Oral  
**Contribution authors:** Audrone Bliujiene (Klaipėda University, Institute of the Baltic Region History and Archeology) – Eglė Rimkienė (Kretinga Museum) – Evaldas Babenskaskas (Free lancer archaeologist)

The aim of this contribution is to describe the sash-shaped bracelets that were worn in abundance in the 11th-12th centuries AD by the Lithuanian seaside settlers. The bracelets discussed here are mostly found in female cremation graves and are sometimes placed in burial pits as additional offerings. This contribution analyses more than 50 such bracelets, combining the circumstances of their discovery in archaeological contexts, the analysis of their metal composition, the investigation of the technical aspects of their production process, the ornamentation

and special straight upright engravings on the inner surface and cuts at the ends of the bracelets. These marks were deliberately made by the jewellers who worked on the bracelets during the production process. Bracelets were worn in pairs of three to six bracelets on each hand, and each bracelet weighs between 70 and 90 grams. Engravings and cuts could be the jeweller’s “instructions”, showing the order in which the bracelets should be placed on the arm so that they would be comfortable to wear, pairs of bracelets reveal the esthetic value of geometrical patterns and probably symbolic meaning. The elemental composition of the copper alloys of these bracelets was determined by XRF and ICP-MS. Bracelets were made of copper alloys common in Early Medieval times. Combining all the analyses, three copies of the bracelets were made. They confirmed that the idea behind the cuts and notches on the bracelets was that the jewellery in question should be worn correctly, so that the meaning of the bracelet was revealed to the wearer. These bracelets testify to communication between jewelers and workshops and to the transmission of knowledge in the region where these bracelets were common.

349. A PATTERN OF BOG IRON ORE DEVELOPMENT IN LITHUANIA (A CASE STUDY FROM THE TRANS-NEMUNAS REGION)

**Contribution format:** Oral  
**Contribution authors:** Andra Simniškytė-Strimaitienė (Lithuanian Institute of History, Department of Archaeology) – Aušra Selskienė (Center for physical sciences and technology) – Vidas Pakštas (Center for Physical Sciences and Technology)

From prehistoric times until the 19th century, locally sourced bog ore was used for iron reduction in Lithuania, although the occurrences of the ore itself in archaeological contexts are infrequent, the deposits of the raw materials, that were used in the past, are not known, and the (neo)formations have not been localized or geologically mapped. For several years now, the need for ore materials has emerged during iron smelting experiments, which has prompted more intense searches for deposits and has also provided the opportunity to study the model of bog iron ore formation, based on the algorithm that different morphologies of mineral deposits represent different development stages, with bog iron soils (unstable form) being the first phase, hard concrete layers the very last (Thelemann, 2017). Bog iron ore development is important to understand the methods of exploiting mineral sources and the technological aspects of metallurgy in the past, and the study of neoformations can guide the interpretation of an archaeological context through an experimental approach. This presentation aims to establish a preliminary pattern for bog iron ore development in Lithuania using a case study and to assess how it corresponds with the established model of bog iron ore formation. Research is being conducted in the Trans-Nemunas region, where various types of information (written records, cartographic materials, toponymy, abundant slag findings) testify to the intensive bog ore extraction and iron production activities in the past. The methodology includes field surface survey and shovel-pitting, lab investigation, and experimental iron smelting. Based on these data it is intended to define the characteristics of the deposit concerning the landscape features to understand the prerequisites and mechanisms that could have conditioned the exploitation and usage of bog iron ore in the past.

29. CASTING MONUMENTAL BRASS STATUARY DURING THE RENAISSANCE: THE CASE OF THE “SCHWARZE MANDER” IN INNSBRUCK, AUSTRIA

**Contribution format:** Oral  
**Contribution authors:** Marianne Mödlinger (University of Innsbruck) – Bastian Asmus (Labor für Archäometallurgie) – Marc Gener-Moret (Centro Nacional de Investigaciones Metalúrgicas (CENIM-CSIC))

The 28 “Schwarze Mander” are undoubtedly among the most magnificent monumental copper-alloy statues of the Renaissance. Commissioned by the Holy Roman Emperor Maximilian I for his funeral monument at the beginning of the 16th century, they were completed more than 30 years after the Emperor’s death. For the first time, by using approaches techniques and procedures developed for archaeometallurgy, the chemical composition of these statues and the various parts from which they were made have been identified by non-invasive XRF analysis. In addition, original manuscripts and letters exchanged between Maximilian I and the various artists were analysed. Taken together, this provides an initial assessment of the complex production process and the challenges faced by the artists in creating the statues. In the near future, the aim is to reconstruct the workshops involved in the production of the statues, to characterise the materials used in the production of the statues, to re-learn foundry processes from past traditions, to understand the role of the statues in the context of Maximilian’s genealogical self-fashioning and, finally, to identify the original appearance and possible coatings of the brass statues.

385. NONDESTRUCTIVE SEM-EDS ANALYSIS OF SILVER AND GOLD HAIR-RINGS FROM THE EARLY BRONZE AGE FROM YAMBOL REGION, BULGARIA

**Contribution format:** Oral  
**Contribution authors:** Todor Valchev (Historical museum - Yambol)



The second half of the 4th millennium BC marks the beginning of one of the most dynamic and interesting periods in Balkan history – the Bronze Age. This is a time of migrations of people, transfer of technological know-how, exchange of ideas and innovations, and cultural influences. Around 3100 BC, large groups of migrants of the so-called Yamnaya culture appeared on the Balkan Peninsula. These people were nomads who originally lived in the North Black Sea area. The communities of the Yamnaya culture crossed the Stara Planina Mountain and reached the valley of the Tundzha River. The terrain in the Tundzha River watershed is level to rolling. Abundant water and mild climate offered optimal natural conditions for the newcomers. With the bringers of Yamnaya culture also appeared the first silver jewels. The aim of this report is to present results from the nondestructive SEM-EDS analysis of the 3 golden and 21 silver spiral hair-rings from the Early Bronze Age. The jewels are found in the main and secondary graves of 13 burial mounds in Lower and Middle course of Tundzha River. Spiral hair-rings were worn on the most visible places in the human body – the face. They are symbols of the prestige and presented the social position of their owner in ancient society.

**350. DATING GOLD OBJECTS NON-INVASIVELY: ELECTROCHEMICAL ANALYSIS OF THE 7TH/8TH CENTURY RUPERTUS CROSS FROM SALZBURG, AUSTRIA**

**Contribution format:** Poster  
**Contribution authors:** Marianne Mödlinger (Universität Innsbruck) – Laura Osete Cortina (Universität Innsbruck | Universitat Politècnica de València) – Antonio Doménech-Carbó (Universitat de València) – Maria Teresa Doménech-Carbó (Universitat Politècnica de València)

The Rupertus Cross, a processional cross from the later 7th century or the beginning of the 8th century, probably comes from a workshop in Northumbria, England and reached Salzburg, Austria under Bishop Virgil. It is the most monumental crux gemmata of the first Christian millennium. Made of maple, the wooden cross was covered with gilded copper sheets. The cross was originally decorated with 38 enamel discs, of which only nine remain. In 1998, a likely fragment from the cross was found during excavations at Bischofshofen parish church (Austria). The electrochemical analyses presented here are intended to determine whether this fragment actually belongs to the cross, whether it is of the same date, and whether some other analysed fragments of the cross can be linked to later restorations. We aim to obtain answers to these questions by voltammetric analysis (VIMP: voltammetry of immobilized particles methodology) of several areas of the cross. First analyses, already, show that the data are consistent with the attribution of the Bischofshofen fragment to the original cross.

**1187. ECHOES OF THE CARPATHIANS: THE ROLE OF IMPORTS AND IMITATIONS AMONG THE EARLIEST SWORDS OF THE NORDIC BRONZE AGE**

**Contribution format:** Poster  
**Contribution authors:** Bart Cornelis (Curt-Engelhorn-Zentrum Archäometrie | Eberhard Karls University of Tübingen) – Andreas Wittke – Daniel Berger (Curt-Engelhorn-Zentrum Archäometrie)

The Early Nordic Bronze Age I (1700 – 1500 BC) is a pivotal period in Northern Europe due to the transition from the late Neolithic to upcoming metal using societies. This period is marked by innovation and change, made apparent by the appearance of refined bronze artefacts that draw upon originals from the Carpathian Basin in Southeastern Europe belonging to the Hajdúsámson-Apa type. Prime examples of this North-South connection are the first ‘full-hilt swords’ in Northern Europe, that are likely imported. Moreover, these imports were locally imitated with similar forms and decorations, but the casting technique differed from their precursors. As a result, potential imports from south-eastern Europe can be typologically distinguished yet archaeometallurgical support can still be expanded upon. The poster presents an in-depth archaeometallurgical analysis that was performed within the framework of an ongoing research project ‘Origin, development and technology of the Bronze Age blades of the ‘Sögel-Wohlde-Kreis’. The project studies the development of metallurgy in Northern Europe, using a multi-proxy approach based on a combination of chemical (EDXRF) and lead-isotope analyses, supported by copper and tin isotopic studies (MC-ICP-MS). The study presents new archaeometallurgical data of Nordic full-hilt swords, such as the swords from Torupgårde and Dystrup, that can now be directly compared to their Carpathian counterparts. Chemical and lead-isotope data suggest distinct archaeometallurgical differences between the Nordic and Carpathian swords that can point to local Nordic manufacture versus imports. For example, the sword from Torupgårde appears to have chemical and lead-isotopic signatures nearly identical to a sword from the Hajdúsámson hoard suggesting that the imports may be more closely related to their Carpathian counterparts than initially assumed.

**151 “BY THE VEHEMENCE OF FIRE”: EXPLORING MATERIAL CULTURE THROUGH COLOUR**

**Session theme:** 1. On artefacts and beyond  
**Session format:** Session with keynote presentation  
**Session keywords:** colour, archaeological science, pyrotechnology, glass and ceramics, metals and pigments, production technology  
**Session organisers:** Maria Kaparou (Institute of Nuclear and Particle Physics, NCSR ‘Demokritos’) – Nelly Kladouri (Hellenic National Archaeological Museum | Institute of Nuclear and Particle Physics, NCSR ‘Demokritos’) – Ariadni Kostomitsopoulou Marketou (MF Norwegian School of Theology, Religion and Society)

**SESSION ABSTRACT**

From the earliest controlled flames to the vibrant hues of ancient artefacts, pyrotechnology has played a crucial role in human expression and cultural evolution. Colour has often been linked to specific pyrotechnological skills that influenced trade dynamics, status, and cultural or ritual symbolism. This session will explore how ancient civilisations harnessed the power of fire across various crafts, examining the interplay between colour and material culture in pyrotechnological products, including, but not limited to, glass and vitreous materials, metals and alloys, ceramics, and pigments. We seek to discuss not only the technical achievements of the past, but also the symbolic meanings, social practices, aesthetic and economic values that shaped the ancient world toward enhancing our understanding of how craft production influenced colour perception and vice versa. Our focal points include the Mediterranean world, Europe, and the Near East, following a transhistorical approach up to the Late Medieval period. We encourage inter- and cross-disciplinary contributions that investigate the operational sequences (chaîne opératoires) and technological choices involved in colour selection, manipulation, fabrication and transformation. Topics of interest include archaeometric studies on the physicochemical processes of colour per se or its development depending on the very material, as well as studies on its history and archaeology and illuminate aspects of its perception and cultural significance in ritual practice, identity, and social status.

**CONTRIBUTION ABSTRACTS**

**2530. KEYNOTE: CRAFTING COLOUR IN CERAMIC AND GLASSY PIGMENTS. DECODING THE ALCHEMY OF FIRE**

**Contribution format:** Oral  
**Contribution authors:** Eleni Aloupi-Siotis (THETIS Authentics Ltd)

The practice of combining different clays and mineral pigments (e.g., ochres, umbers) to decorate ceramics was widespread across the ancient world. From China and Mesopotamia to Anatolia, the Balkans, mainland Greece, the Cyclades, Cyprus, and even as far as Indian and Mayan cultures, black and red decoration on pale backgrounds was a common stylistic choice. These colours emerged through firing as a combined effect of kiln atmosphere and temperature, typically not exceeding 950-1000°C. Some vessels, fired at only 650-700°C, can only marginally be classified as ceramics. In the 6th century BCE, Athens saw the rise of black-figure and later red-figure ceramics, distinguished by their durable, intensely coloured black ceramic glaze. Simultaneously, in China, protoporcelain techniques emerged, paving the way for highly fired ceramics that influenced global ceramic traditions. This paper explores key decoration techniques in ancient pottery and the technological development of synthetic glassy pigments across different cultures. The iron reduction process in Athenian black glaze, the use of Egyptian blue and other pigments in polychrome Attic vases, and the cross-fertilization of ceramic and painting techniques—analogueous to the Renaissance maiolica tradition, where painters’ pigments and ceramic decoration intersected—highlight the circulation of materials and knowledge among artisans across time and artistic disciplines.

**242. MULTIVALENCE OF BLACK ON ATTIC RED-FIGURE POTTERY**

**Contribution format:** Oral  
**Contribution authors:** An Jiang (Independent Scholar)

Since the Bronze Age, ancient Greeks have long manipulated the colors of their ceramics both in the processes of firing and decorating for diverse purposes of cultural expression. Among the several colors preferred by the Greeks, black is essential in their pottery production, which eventually culminates in the perfection of the black-glaze pottery and the black-figure pottery during the sixth century B.C. For the latter, the contrast between black figures and the light-color background was achieved by a complex three-step firing process. During the last quarter of the same century, by reversing the technique, the Attic ceramists created red-figure pottery which soon



became fashionable and sought after throughout the Mediterranean for the subsequent two centuries. On Attic red-figure pottery, the color of black, despite largely receding to the background, remains indispensable and multi-valent in expressing some of the most significant characteristics of the ancient Greek cultural identity. In fighting scenes, black is used symbolically on warriors to evoke the darkness of fate that is permeating in the Homeric poetry. In certain ritual scenes, black is deliberately used on sacrificial animals. Such a visual sign is probably meant to represent the enagismos to the black goddess, an important cultic practice known especially in the Peloponnese. Black is also closely associated with certain deities, such as Demeter Melaina and Erinyes who are related to the underworld. Moreover, on a social level, black is emphatically adopted to indicate people in mourning and in a lower social status. This paper examines the multivalence of black as revealed from the decoration on Attic red-figure pottery, which illuminates crucial aspects of the perception of black in ancient Greek culture.

**1937. ISLAMIC GLAZED CERAMICS FROM MÉRTOLA (PORTUGAL). AN ARCHAEOMETRIC STUDY OF METALLIC LUSTRE GLAZED WARES**

**Contribution format:** Oral  
**Contribution authors:** Stamatina Nikologianni (Institute of Nanoscience and Nanotechnology, N.C.S.R. Democritos, Athens) – Massimo Beltrame (Hercules Laboratory, University of Evora)

The largest collection of Islamic metallic lustreware glazed ceramics of the Gharb al-Andalus (Western Iberia, during the Islamic period), has been discovered in Mértola (Portugal). This collection dates from the second half of the 11th century until the early decades of the 13th. The fragments belong to a set of metallic lustreware ceramics produced during the time of the Seville Abbey dynasty (in the second half of the 11th century) and in the Almohad era (12th and 13th centuries). Typologically, these fragments are quite diverse, including pots, small jars, cups and plates. Of this set, approximately half have a golden and reddish decoration with a very distinctive brightness, primarily applied closed shapes. The remaining half exhibits a more yellowish-golden colour, commonly found on open forms but also occurring i. closed ones. In all instances, the golden decoration is quite fragile, leading to its deterioration i. several pieces, where only small traces are visible. The samples from Mértola were studied alongside lustreware glazed ceramics from Coimbra (Portugal) and Calatrava, la Vieja (Spain) to enable a comparative analysis of provenance and production technology of metallic lustre ceramics. This approach aims to provide deeper insights into the technological practices responsible for the various lustre colours observed in these ceramic samples using archaeometric methods.

**406. MAIOLICA FROM THE “WELL OF WONDERS” (ORVIETO, ITALY): EXPLORING MEDIEVAL CERAMIC TECHNOLOGY AND COLOR PRODUCTION**

**Contribution format:** Oral  
**Contribution authors:** Elisabetta Gliozzo (Dept. of History, Archaeology, Geography, Fine and Performing Arts, University of Florence) – Danilo Leone – Vincenzo Valenzano (Dept. of Humanities, Letters, Cultural Heritage and Educational Studies, University of Foggia)

The excavation of the “Well of Wonders” at Campo della Fiera in Orvieto has yielded a remarkable collection of ceramic materials that provide direct evidence of different phases of the maiolica’s production process. Among these finds are numerous biscuit-fired ceramics, over 600 well-crafted maiolica pieces attributable to at least two distinct production periods— one in the 13th-14th centuries and the other in the 15th-16th centuries —defective maiolica that were discarded, production waste and a significant number of maiolica pieces that are entirely blackened. In line with the session theme, this study focuses on reconstructing the technological cycle of maiolica production, with particular attention to the role of fire in determining color variations and surface transformations. A comparative analysis of materials from different periods will reveal possible technological evolutions and continuities in raw material selection, pigment application and firing methods. A critical aspect of this study concerns the numerous maiolicas that exhibit a completely black and glossy surface. This phenomenon raises key questions about whether their appearance resulted from specific firing conditions—such as a high-temperature reducing atmosphere—or post-depositional factors related to their burial environment. Archaeometric analyses, including polarized optical microscopy, scanning electron microscopy, electron microprobe and inductively coupled plasma mass spectrometry have been used to identify the specific materials and methods used in the production process, providing insights into the technological capabilities and artistic practices of the period. By examining the intricate relationship between fire, color technology and production methods, this study enhances our understanding of the craftsmanship of medieval ceramists from Orvieto and nearby regions and advances knowledge of ceramic technology, production and trade in medieval Europe.

**1498. SHADES OF BLUE AND GREEN IN MYCENAEAN GLASS FIRING: THE CASE OF VOUDENI**

**Contribution format:** Oral  
**Contribution authors:** Maria Kaparou (Institute of Nuclear and Particle Physics, NCSR ‘Demokritos’ | Institute of Nanoscience and Nanotechnology, NCSR ‘Demokritos’)

Glass was a highly valued material in Mycenaean times, embodying both technological achievement and profound symbolic meaning. The deep cobalt blue, achieved through the inclusion of cobalt oxides, closely resembled lapis lazuli, associated with divine favor and elite status in the ancient world. Copper blue glass, with its vibrant turquoise hue, likely evoked the natural elements of the sea and sky, central to Mycenaean cosmology and identity. These materials were not mere decorative elements but carried social and ideological significance, while their crafting required advanced pyrotechnological expertise. The Mycenaean cemetery of Voudeni, in use for roughly 500 years (1500-1100 BCE), offers a compelling case study for examining the role of cobalt and copper blue glasses in funerary practices. The site includes 78 carved tombs and the ruins of a prehistoric settlement, possibly identified with ancient Mesatis. Most tombs were carved in circular, square, horseshoe, or quadrilateral forms, with domed chambers of varying sizes, often housing multiple burials. The largest tombs, such as numbers 4 and 75, likely belonged to officials or lords, reflecting the community’s hierarchy. Grave goods included vases, jewelry, tools, weapons, and utensils, indicating the prosperity and trade connections of the locals. The discovery of glass beads and inlays highlights their association with both elite and non-elite burials, symbolizing status and likely serving as offerings or protective charms respectively. These artifacts reflect the Mycenaeans’ cultural narratives, blending technological innovation with symbolic meaning. By integrating Voudeni’s material evidence and analytical data with bibliographic insights, the cultural and pyrotechnological significance of cobalt and copper blue glasses becomes clear, underscoring their role as carriers of meaning in Mycenaean society.

**1916. GLASS TECHNOLOGY AT THE SERVICE OF THE DEAD. BLUE GLASS JEWELLERY AND ORNAMENTS IN MYCENAEAN BURIALS**

**Contribution format:** Oral  
**Contribution authors:** Kalliopi Nikita (Ephorate of Antiquities of East Attica, Hellenic Ministry of Culture, Greece)

This work deals with the occurrence of blue glass jewellery and ornaments in burials of Mycenaean Greece during the principal Mycenaean period, namely 14th-13th centuries BC. This is the time when standardised forms of glass beads, plaques and ornaments principally in shades of dark blue, light blue and turquoise were produced in large numbers at the Mycenaean palatial workshops and were widely distributed throughout the Aegean. Emphasis is placed on glass assemblages found in the broader region of Attica. The blue glass jewellery found in the tholos tomb at Menidi and in the chamber tombs at Spata are representative examples owing to their outstanding quality and great quantity. A comparative study with published blue vitreous ornaments from contemporaneous cemeteries in Attica such as Athens, the Athenian Agora, Brauron, Varkiza-Vari, Voula-Alyki, Kalamaki, Eleusis will facilitate a more comprehensive discussion on the morphology, dating, spatial distribution and provenance of blue glass jewellery in the broader region of Attica. The range of glass colours and bead forms, the diversity of decorative designs on the moulded relief plaques as well as the modes of their stringing and arrangement in association with their burial deposition are presented and assessed. The paper aims to elucidate the role of vitreous jewellery as burial offering intended for the ritual of dressing and ornamentation of the dead in conjunction with the distinctive predilection for the use of cobalt and turquoise blue glass by the Mycenaeans.

**941. ORGANISING GLASS CULLET BY COLOUR AT THE ROMAN MANUFACTURING DISTRICT OF SPOLVERINO, TUSCANY (IT)**

**Contribution format:** Oral  
**Contribution authors:** Thomas Derrick (Macquarie University)

The Roman site of Spolverino (Alberese, IT) sits within the Maremma National Park in southern Tuscany. Nestled on the bank of the River Ombrone, the site has been identified as a centre for manufacturing and reuse. Across various phases, evidence suggests activities such as agricultural processing, a communal kitchen, metalworking, bone-working, attempted lime-burning, and glass cullet collection. A nearby maritime villa (Umbro Flumen) and sanctuary to Diana Umbronensis share construction methods and point towards a concerted structuring of the productive zone in the mid to late Roman empire. Over 7000 fragments (14kg) of Roman glass cullet have been identified from two rooms in this complex, including a suite of furnaces (but with no evidence of working waste). It seems possible that the site’s proprietors thought to create glassworking kilns to process glass waste in the same way that metal was being worked into ingots next door. However, as glass cullet can be used directly by glassworkers and remained a tradeable good, the ‘workshop’ instead focused on the curation and distribution of glass cullet. This paper examines the spatial organisation of this cullet through the archaeological record and aims to investigate parallels elsewhere in Italy and further afield.



1267. TECHNOLOGY, PROVENANCE AND COLOURS OF BYZANTINE GLASS BRACELETS FROM THE 11TH–12TH CENTURY BRANIČEVO AND MORAVA (SERBIA)

**Contribution format:** Oral  
**Contribution authors:** Roman Balvanovic (Vinča Institute of Nucelar Sciences) – Žiga Šmit (Jožef Stefan Institute | Faculty of Mathematics and Physics, University of Ljubljana, Slovenia) – Igor Sylachev (Institute of Nuclear Physics, Almaty, Kazakhstan | Institute of Nuclear Physics, Almaty, Kazakhstan) – Milica Marić-Stojanović (National Museum Belgrade) – Dragana Spasić-Đurić – Teodora Branković (National Museum Požarevac) – Riccardo Avanzinelli (Dipartimento di Scienze della Terra Università degli Studi di Firenze)

Glass bracelets were a popular decorative item across the Byzantine Empire from the 10th to 12th centuries, with multiple production centers identified. The 11th –12th century Byzantine towns of Braničevo and Morava in Serbia are particularly noteworthy due to their extensive collections of these bracelets, suggesting that the region was an important production hub. These bracelets were made from three types of flux: natron, plant ash, and evaporitic mineral soda. While the natron and plant ash glass exhibit characteristics typical of Levantine origins, the mineral soda glass comes from natron sources likely located in Anatolia. Black bracelets produced of natron glass were colored using high concentrations of iron in an oxidizing furnace environment. In contrast, black bracelets made from plant ash, mixed plant ash, and evaporitic mineral soda contained lower iron levels and were produced in a reduced furnace atmosphere. Cobalt-blue bracelets were colored with a cobalt pigment, which appeared in two distinct variants: one with high zinc content, resembling the cobalt-zinc colorant used in contemporary Islamic plant ash glass, and another with low zinc content, sourced from a different cobalt ore. The bracelets were categorized based on their shape, color, cross-section, and decorative elements into several types: Monochromatic bracelets – undecorated and available in various cross-sections; Spirally twisted bracelets – available in both monochrome and polychrome designs; Painted bracelets – featuring decorative painted elements; Profiled bracelets with transverse ribbing. Dark blue was the most common color, followed by light blue, light green, and turquoise, while dark green and black were less frequently found. Blue bracelets, being the most common, were likely the cheapest and widely available. However, it is important to consider the popularity of the color blue in Byzantine society at the time. Rarer turquoise and black bracelets were probably more expensive, indicating a wealthier clientele.

901. AS LONG AS IT’S BLUE: CRAFTING ARSENICAL COPPER IN THE BRONZE AGE BALKANS

**Contribution format:** Oral  
**Contribution authors:** Miljana Radivojevic (UCL Institute of Archaeology) – Thil. Rehren (The Cyprus Institute) – Maja Kuzmanović (Independent) – Meghna Desai (The Cyprus Institute)

Copper metallurgy in the Balkans is famous for its massive copper metal implements circulating this area throughout the 5th millennium BC. The first known copper alloy, arsenical copper, occurred in the Balkan Late Chalcolithic cultures by the end of this period. However, very little evidence is found related to the production of this alloy, and the lack of findings is commonly ascribed to the slagless nature of the early metal extraction process. Here we present copious evidence on the earliest documented arsenical copper smelting in the Balkans, from two sites in Serbia and Croatia, dated to the mid-4th millennium BC. Exceptionally well-preserved crucibles, slags and a few metal artefacts offer a rare insight into the technology of smelting and working arsenical copper in this part of the world. After the completion of our mineralogical, compositional, microprobe and provenance analyses, we argue raw materials for smelting arsenical copper come from a very rich and colourful mixed oxidic ore, available locally. The enrichment of crucible slags with specific transition metals such as Mn, Zn and Fe, together with the occurrence of fayalite and delafossite in several slag areas, confirms the smelting of an original ore charge rather than the re-melting of pre-existing metal smelted previously elsewhere. Since arsenical copper was preferred during much of the Late Chalcolithic/Early Bronze Age in the Near East and contemporary cultures in central Europe, this research is of wide-ranging relevance to our understanding of the early stages of copper alloy metallurgy in Eurasia.

1548. METALLURGICAL TECHNOLOGY AND THE AESTHETICS FOR RITUAL DEPOSITION IN THE SANCTUARIES OF TEGEA, GREECE (9TH–7TH CENTURIES BCE)

**Contribution format:** Oral  
**Contribution authors:** Nelly Kladouri (Hellenic National Archaeological Museum | Institute of Nuclear and Particle Physics, N.C.S.R. “Demokritos”) – Vana Orfanou (Ludwig-Maximilians-Universität München (LMU)) – Andreas Germanos Karydas (Institute of Nuclear and Particle Physics, N.C.S.R. “Demokritos”)

This study investigates the relationship between metallurgical technology and aesthetics within the context of ritual deposition, highlighting how ancient metalworkers were motivated not only by functional needs but also by the visual properties of metals. It focuses on the colour of copper alloys, which held ritual and social significance, as seen in the early adoption of gold-like metals and the specific hues of tin bronzes. Previous studies have demonstrated that minor compositional variations in Cu-As-Sn alloys can cause significant colour shifts: high tin content produces golden to silvery hues, whereas arsenic results in reddish to pink and eventually silvery tones. To investigate these patterns, 247 artefacts from four sanctuaries in Tegea, Arcadia, Greece (9th–7th centuries BCE), were analysed using micro-X-ray fluorescence spectrometry (micro-XRF), and their compositions were correlated with published experimental colorimetric data to reconstruct their probable original colours. The analysis revealed that the pins, rings, and sheets of the assemblage fell within distinct compositional ranges. The pins exhibited a more consistent alloy composition, suggesting stricter material control. The findings indicate a strong correlation between alloy composition, colour, and function, underscoring the role of aesthetics in ancient metallurgical practices. The persistence of specific alloy compositions, especially in pins, suggests a deeply rooted cultural tradition. Ultimately, this study highlights that aesthetic concerns, particularly colour, significantly influence the production and utilisation of copper alloys in ancient metallurgical practices.

996. ATRAMENTUM: CRAFTING CARBON-BASED BLACK PIGMENTS IN THE HELLENISTIC AND ROMAN WORLDS

**Contribution format:** Oral  
**Contribution authors:** Ariadne Kostomitsopoulou Marketou (MF Norwegian School of Theology, Religion and Society)

Among the colourants produced through pyrotechnological processes, one stands out as the direct outcome of fire: carbon-based black. Depending on the production process and starting materials, carbon-based black pigments can be divided into three categories: chars, cokes, and flame carbons, all of which were used as colourants in the Graeco-Roman period. Even though the production of carbon-black pigments mostly depended on commonly available materials and a seemingly simple process, ancient literary sources indicate the existence of an organised production and trade for (at least some of) these pigments. The production of an artificial carbon-based black pigment as described by Vitruvius, for example, is a rather complex pyrotechnological process that required specialised craft-knowledge and permanent workshop installations: a built structure lined with polished marble and interconnected to a furnace via vents. In this way, the soot produced by the carbonisation of the starting materials in the furnace could be directed into the structure, where it was deposited on the marble walls before being carefully collected to be used in painting or writing (De arch. 7.10). At the same time, alternative options for carbon-based black pigments are described, such as chars produced by burning a range of starting materials that would result in black pigments of various qualities. Given the importance of carbon-based black pigments in ancient polychromy, painting, and writing, this paper examines archaeological evidence of carbon-black production and reviews contemporary literary sources describing their manufacture and use in the Hellenistic and Roman periods. In turn, archaeological and literary evidence are compared to archaeometric analyses on paintings and manuscripts. In doing so, this paper’s aim is two-fold: a) to contribute to our understanding regarding the organisation of the production, circulation, and use of these materials and b) to identify methodological advances and challenges linked to the characterisation of carbon-based black pigments.

937. ROLLING WITH THE CHANGES: THE ADVANTAGES OF FIRING EGYPTIAN BLUE AS PILAE (PELLETS)

**Contribution format:** Oral  
**Contribution authors:** Hilary Becker – Jeffrey Pietras (Binghamton University (SUNY)) – Gregory Smith (Newfields, Indianapolis Museum of Art)

An innovation in the production of Egyptian blue occurred by at least the Hellenistic period when the pigment was made into small individual balls before firing rather than large blocks or bowl shapes that had been used in the millennia before. A recent study Kovalev et al. stated, “the transition from cakes to pellets may mark a technological innovation or reflect changes in the organization of the EB chaîne opératoire; the reason for this change remains unclear and needs further investigation” (Kovalev (2023)). What might be the reasons for this morphological change? For all of the experiments on Egyptian blue since the late 19th century, no study has explored the production advantages and disadvantages of shaping Egyptian blue into the large block shapes utilized in the Bronze age compared with the later ball shapes. At first glance, forming Egyptian blue into balls seems less efficient since rolling material into balls takes time, material can be lost, and fewer can fit into a crucible. However, making large blocks of Egyptian blue takes care to prepare, including allowing time for the large blocks to air dry before firing. Furthermore, the crucibles were commonly destroyed while removing the block after firing because they become fused. Since the balls make less contact with the sides of the crucible, they can be more easily freed without damage. The ability to reuse the crucibles would have been an added economical advantage. This study will review what experimental firings demonstrate about the differences in preparing and firing



the larger shapes compared with smaller ones. Archaeological evidence of Egyptian blue, such as a cake from Amarna with scoring marks, as well as large groups of Egyptian blue balls that are found together in agglomerated “lingots” will be assessed for further evidence of the production and firing processes.

**1817. VASES FROM THE GRUPPO DI VANTH: ANALYSIS OF THE CHEMICAL COMPOSITION OF PIGMENTS AND THE SYMBOLISM OF THEIR COLOURS**

**Contribution format:** Oral  
**Contribution authors:** Marína Zubajová (Masaryk University) – Letizia Ceccarelli (Politecnico di Milano | Masaryk University) – Roberto Paolini (Independent)

A group of red-figure vases from Orvieto, the s-c. Gruppo di Vanth, is dated to ca. 320–300 BC and contains approximately 12 vases. They are stored in museums in Orvieto, Chiusi and Palermo, but most of them are not on display. A brief description of some of them was given by Beazley (1947), some of them have been studied in more depth from an iconographic point of view (eg Dragoni 2006), but the whole group has never been systematically studied and published and that is the main goal of the authors. The contribution will mainly focus on their “materiality”, which is the technology of applying pigments after firing, as some of them have red and blue pigments on the handles, a rather unique technique. Furthermore, the paper will include chemical composition (pXRF) of the pigments, fabrics and black gloss analysis to determine whether the vases, attributed to this group, were produced by the same workshop, possibly in Orvieto. Therefore, to determine the group’s workshop not only on a stylistic but also on a scientific basis, it will be analyzed other vases produced in Orvieto. In addition, the contribution will present a reconstruction of the original appearance of the unpreserved parts of some vases. Hence, a part of the project is experimental: the ancient technologies will be reproduced aiming to reconstruct amphora No. 2645, which is quite known in terms of iconography, but no one has ever deeply studied its “materiality” and thus its original overall form, or how it was created and painted. The frieze depicts a journey to the underworld and the paper will also deal with the symbolism of the colours of the pigments and the plastic decoration of the handles and their relationship to the scene on the frieze.

**1296. JUST A KIND OF BLUE: THE PRESENCE OF LAZURITE IN 17TH-19TH CONTEXTS FROM CACHEU, GUINEA-BISSAU**

**Contribution format:** Oral  
**Contribution authors:** Rui Gomes Coelho (Department of Archaeology | Durham University | UNIARQ - Centro de Arqueologia da Universidade de Lisboa) – Maria Da Conceição Freitas (IDL - Instituto Dom Luiz, Universidade de Lisboa) – Ana Manhita – Mafalda Costa (HERCULES Laboratory | University of Évora) – Sara Simões (UNIARQ – Centro de Arqueologia da Universidade de Lisboa) – João Pedro Tereso (Associação BIOPOLIS - InBIO | UNIARQ – Centro de Arqueologia da Universidade de Lisboa) – Cláudia Oliveira (Associação BIOPOLIS - InBIO) – Sónia Gabriel (Laboratório de Arqueociências (LARC) - Património Cultural, IP | Associação BIOPOLIS - InBIO | UNIARQ - Centro de Arqueologia da Universidade de Lisboa) – Ana Maria Costa (Laboratório de Arqueociências (LARC) | Património Cultural, IP | Associação BIOPOLIS-InBIO | IDL - Instituto Dom Luiz, Universidade de Lisboa | UNIARQ - Centro de Arqueologia da Universidade de Lisboa)

In this paper we present the results of the analyses of i) blue pigment particles and ii) the two blue hues observed in a painted wall fragment, collected from the excavation of an early modern trade house in Cacheu, Guinea-Bissau. The site’s occupation started in the late 15th or early 16th centuries as part of a newly formed Portuguese colonial settlement. It was a residential building and trade house until the 1970s. It is located about 50 meters West of what was likely the first parish church. It currently hosts the Memorial of Slavery and the Slave Trade. The samples were collected from well-established stratigraphic contexts excavated in the yard of the building. The contexts were dated back to the 17th-18th (pigment particles) and 19th-20th centuries (wall fragment).The samples were analysed with micro X-ray diffraction (μ-XRD), a non-invasive method, allowing us to identify the crystalline phases of materials present in both samples. Both the pigment particles and the two blue hues observed in the wall fragment were identified as lazurite, indicating the use of lapis lazuli or its synthetic and cheaper alternative ultramarine, which was first developed in 1828. The context’s chronology suggests that the pigment particles found are of natural origin. Lapis lazuli and the blue pigment extracted from it were one of the most expensive materials used in the palette of early modern Western painters. Its intense blue and fine texture gave the pigment a special place in artistic practice.The presence of lazurite and the source of the painted wall fragment in the context found at the Memorial of Slavery is still under debate.

**1523. NEGATIVE PAINTING ON NEOLITHIC POTTERY: INTERACTION OF COLOR AND SPACE**

**Contribution format:** Poster  
**Contribution authors:** Olga Bajcev (Institute of Archaeology, Belgrade)

Negative painting is a distinctive decorative technique that emphasizes a unique approach to perceiving and utilizing color and space. In negative painting, a design is not created by painting the motif itself, but rather by applying the paint to the surrounding or „negative“ areas. For instance, instead of painting a spiral motif itself, the artist applies paint around the shape, allowing the unpainted surface—either the raw vessel or a slip coating—to define the form. This creates a visual effect where the design appears to emerge naturally from the negative space. This paper investigates examples of the negative painting technique on the Early Neolithic pottery from sites in Serbia (6200-5400 BC). The study focuses on the selection and combination of paints, the chaîne opératoire of the painting process, and the artisans’ level of technical skill. This technique demanded a distinct approach to both planning and execution, setting it apart from other painting methods observed in the Early Neolithic of the Central Balkans. The resulting designs present a creative twist on traditional styles. While examples of negative painting are relatively rare, they provide valuable insights into early aesthetic cognition. The use of negative painting suggests that Neolithic potters perceived color and space as interconnected elements, actively engaging in their interplay. They understood that the slip’s color was not merely a backdrop for decoration but an integral part of the design itself. In other words, they recognized that “empty” or unpainted areas were not simply voids but essential, active components of the composition. This reveals an early understanding of figure-ground organization, where subject and background work together to create a harmonious whole, illustrating a sophisticated grasp of positive and negative space in art.

**1601. DARKNESS VISIBLE: EXPLORING THE ORGANISATION OF IA GLASS BEADMAKING THROUGH TYPOLOGY-COMPOSITION LINKS OF PHOENICIAN-TRADED BLACK GLASS BEADS FROM PORTUGAL**

**Contribution format:** Poster  
**Contribution authors:** Valentina Loncaric (HERCULES Laboratory, University of Évora | IN2PAST Associate Laboratory for Research and Innovation in Heritage | Dept. Earth and Environmental Sciences, KU Leuven) – Mafalda Costa (HERCULES Laboratory, University of Évora | IN2PAST Associate Laboratory for Research and Innovation in Heritage) – Ana Margarida Arruda (UNIARQ - Centre for Archaeology of the University of Lisbon, School of Arts and Humanities) – Patrick Degryse (Dept. Earth and Environmental Sciences, KU Leuven)

Studies of Iron Age glass beads are usually approached from either a typological or technological/provenance study perspective. While typology-based research allows for the discussion on consumer-based phenomena like identity, status and symbolism, technological and provenance studies offer insights into long-distance trade and glassmaking technology. However, the reconstruction of the glass bead chaîne opératoire is severely hindered by the dearth of evidence of beadmaking/glassworking centres. While the current consensus among researchers is that IA glass found in Europe was synthesised in a limited number of primary glassmaking centres in the Eastern Mediterranean and Mesopotamia, many questions regarding the organisation of beadmaking remain shrouded in darkness. These include the number, size, and location of beadmaking workshops, their dependency on and links to certain primary glassmaking centres, and autonomy in secondary glassmaking, i.e. colour modification and/or glass mixing and recycling. Since direct evidence of beadmaking workshops for the period of Iron Age is lacking, one possibility is to explore the links between bead typology and glass composition – with special emphasis on the colourant fraction as an indicator of secondary glassworking – to understand the structure of the glassmaker-beadmaker-consumer network. This poster presents the results of a semi-quantitative pXRF analysis of a large assemblage of Phoenician-traded black-appearing glass beads from Vinha das Calicas 4. The results are compared with previously published LA-ICP-MS data to confirm if the observed relationship between three black-appearing bead types and different colourants persists on the site assemblage. While visually identical, different iron-based colourants were used to produce specific bead types found on the site, suggesting that the people of Vinha das Calicas 4 obtained their beads from at least two different beadmakers or production series.

**152 ARCHAEOLOGY OF STONE SARCOPHAGI AROUND THE MEDITERRANEAN DURING ANTIQUITY: CURRENT RESEARCH AND APPROACHES**

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** (stone) sarcophagi, Mediterranean area, funerary contexts, craftsmanship, methodology  
**Session organisers:** Daniel Morleghem (La Sapienza university (Roma)) – Laura Nazim (Ruhr-Universität Bochum) – Katharina Meinecke (Universität des Saarlandes)



SESSION ABSTRACT

From Antiquity to the present day, the stone sarcophagus has been an ostentatious and costly funerary container. It is very often carved from a quality stone (marble in particular) and sculpted with geometric, plant, animal or anthropomorphic motifs, either as single isolated ornaments or depicting scenes from daily life or mythology. But a large proportion of sarcophagi, which are difficult to quantify at present because they have hardly been studied, are carved in local stone rather than in noble marble, often without any particular ornamentation and in different stages of manufacture. Today, sarcophagi are no longer studied solely from the social, iconographic, artistic and commercial point of view that marked the 19th and 20th centuries. For more than two decades, researchers have been taking an increasing interest in the strictly artisanal aspects (tools and cutting techniques), the presentation and visibility of the object within the funerary space, social differences and various local production centres. Even the simplest examples are gradually becoming part of the regional corpus, so that we can better understand the economy (in the broadest sense) of this particular object, as well as its role as a social and identity marker. The aim of this session is to provide an overview of recent and current research on stone sarcophagi in the Mediterranean during Antiquity. We invite contributors to present their case studies and discuss the following points in particular: - their approach(es) to the sarcophagus as a craft, artistic, funerary and economic object; - the criteria used to establish a corpus; - the place of sarcophagi among other contemporary funerary containers (for example, terracotta and lead - sarcophagi, as well as stone or terracotta urns); - the contextualization of sarcophagi inside the burial space; - the question of recognizable social differences among sarcophagus burials in a common context.

CONTRIBUTION ABSTRACTS

1344. THE MYTHOLOGICAL SARCOPHAGI FROM SOUTHERN ETRURIA: AN INTRODUCTION TO THE CORPUS AND CURRENT PROBLEMS OF INTERPRETATION

**Contribution format:** Oral  
**Contribution authors:** Valeria Riedemann (University of Washington)

To date, scholars have focused on studying funerary myths in Etruria from the perspective of tomb painting and Hellenistic urns (Steuernagel 1998; De Angelis 2015), leaving the unique corpus of mythological Etruscan sarcophagi in a marginal position. Examples of this indifference towards Etruscan sarcophagi are found in recent wide-scope publications where there is no entry for sarcophagi in the art category (Macintosh-Turfa 2013; Naso 2017; Bell and Carpino 2016). Furthermore, studies of myths on Roman sarcophagi emphasise the thematic heritage from the Greek tradition, often ignoring this geographically closer antecedent (Zanker and Ewald 2012; Russenberger 2015; Allen 2022). This paper examines the corpus of painted and carved stone mythological sarcophagi that have come to us –17 exemplars created over fifty years (350-300 BC), all from southern Etruria (Van der Meer 2004). Their findspots (Tarquinia, Tuscania, Vulci, and one example from the Orvieto area) acknowledge the particularities and the uniqueness of this type of funerary monument regarding their stylistic differences and iconographic choices, suggesting the presence of workshops operating locally and regionally (Riedemann Lorca, forthcoming). This research provides a background for the production of mythological sarcophagi in Southern Etruria, specifically focusing on the exemplars from Tarquinia, two of which are from the same tomb (Tomb of the Partunu). The results contend the long-established scholarship tradition to approach these monuments often from iconographic and iconological perspectives, leaving aspects of agency, market choice (i.e., stone and wooden sarcophagi; Weber-Lehmann 2007) and their use in the context of the family tomb insufficiently explored. Finally, this study briefly acknowledges the current state of these monuments in museums worldwide alongside their accessibility and relevance to researchers and the general public.

489. FROM THE ETRUSCAN CHISEL TO THE EUROPEAN MOUSE: INVENTORY AND TECHNICAL STUDY OF ETRUSCAN STONE SARCOPHAGI

**Contribution format:** Oral  
**Contribution authors:** Daniel Morleghem (La Sapienza, University of Rome)

In Southern Etruria, from the 8th to 6th centuries BC, stone sarcophagi were found in small numbers (around 70) in a limited number of necropolises (Bisenzio, Populonia, Tarquinia, Veio); even more similar examples were found in neighbouring Falisco territory. Between the 4th and 2nd centuries BC, the use of sarcophagi became more widespread (around a thousand examples), particularly in the territory of the city of Tarquinia, but also in Cerveteri, Chiusi, Perugia, Orvieto and Vulci. Until recently, researches have focused on decorated, inscribed and generally of good quality sarcophagi, only from the point of view of art history; the reference publication on the subject remains that of Herbig of 1952 (updated in 1974 [Goethert] and 2004 [van der Meer]), even though numerous discoveries have been made since then. As part of an MSCA post-doctorate, a complete inventory of Etruscan stone sarcophagi has been launched, with the aim of listing and documenting all examples - decorated or not, inscribed or not, those of good workmanship as well as the coarsest - of this particular craft production.

Each chest and lid is described morphologically, typologically, technically, ornamentally and petrographically on the basis of existing bibliography and iconography, or by direct observation wherever possible. Visual examination (traceology) of the blocks and selective photogrammetric surveys provide a wealth of information enabling us to reconstruct the “chaîne opératoire” and their temporalities, from the extraction of the blocks to the realisation of a decoration and/or inscription in the workshops or within the tomb itself. It appears so that the Etruscan sarcophagus is not a finished object from a workshop, but can undergo numerous transformations between its acquisition and use, and sometimes even beyond. All of the data is recorded in GIS which can be used to generate thematic or chronological maps, which are currently lacking.

357. LOCAL STONE SARCOPHAGI FROM THE “REGIO INSUBRICA”

**Contribution format:** Oral  
**Contribution authors:** Samuele Cambianica (Universität Zürich, Institut für Archäologie. Fachbereich Klassische Archäologie | Università di Pisa, Dipartimento di Civiltà e Forme del Sapere)

In the prealpine lakes region in the northwestern Transpadana, several monolithic sarcophagi made of local stone, generally dating to the Imperial and Late Antique periods, have been found. These monuments have smooth outer surfaces, lids in the shape of displuviate roofs, and unprofiled coffins. In some cases, they bear inscriptions either in open field or within a tabula ansata. Since the first decade of the 21st century, these previously overlooked funerary monuments have begun to attract scholarly attention. Archaeologists have recognized them as a distinct type of sarcophagus – alongside architectural sarcophagi and “Truhensarkophage”, which are considered characteristic of northern Italy – and have referred to them as “sarcofagi a cassa rettangolare liscia”. In most cases, these sarcophagi are currently found in contexts of reuse, with their provenance unknown. Many remain unstudied or unpublished, and their frequent reuse and relative mobility suggest that numerous additional exemplars have yet to be identified. The scarcity of images and inscriptions that distinguishes this production, combined with the limited data on their archaeological contexts, induces to concentrate the study of these sarcophagi on aspects beyond those traditionally investigated for this class of monuments. These include formal features and their relationship with the material from which they are made, considerations regarding the intended placement, modes of observation and communication, issues concerning the aniconic character of the monuments, and their utilitarian reuse in later periods. Recently, these sarcophagi have been the subject of studies on their typology, production groups, and epigraphic readings using digital techniques. The paper aims to provide an overview of the sarcophagi from this region, evaluate the current state of research, and discuss possible directions for future studies.

1507. AB-U HAYAT QUARRY: A LOCAL MARBLE RESOURCE AND ITS CONTRIBUTION TO SARCOPHAGUS PRODUCTION IN ROMAN EPHEOS

**Contribution format:** Oral  
**Contribution authors:** Vasiliki Anevlavi – Walter Prochaska (Austrian Archaeological Institute, Austrian Academy of Sciences)

The hinterland of Ephesos was one of antiquity’s most significant marble extraction regions, supplying the city with its signature white marble. This research focuses on the Ab-u Hayat quarry, a small yet distinctive source known for its durable and coarse-grained marble. Previous analyses confirm that Ab-u Hayat marble was primarily utilised for sarcophagi production during the early Imperial period, with the peak of activity dated to the 1st century AD. Notably, the Octagon sarcophagus represents an exception, dated to the 2nd half of the 1st century BC. A combination of petrographic and geochemical methods was employed to analyse multiple artefacts, including lids and chests from Ephesian sarcophagi. Techniques included macroscopic observation, ICP-MS trace element analysis, and stable isotope ( $\delta^{18}\text{O}$ ,  $\delta^{13}\text{C}$ ) evaluation, alongside statistical analyses (discriminant analysis). These data were compared against an extensive database of approximately 5,700 geological samples from quarries in Ephesos and prominent sarcophagus production centres such as Prokonnesos, Aphrodisias, and Dokimeion. The results reveal a significant reliance on this local marble source, underscoring the quarries’ central role in the economic and cultural development of Ephesos. This sourcing pattern enriches our understanding of material provenance and ancient trade dynamics, presenting new perspectives on marble use and distribution in the Eastern Mediterranean.

123. IMAGE, TEXT, AND BODY: RECONCILING MODES OF REPRESENTATION ON AND WITHIN SARCOPHAGI OF ROMAN TYRE

**Contribution format:** Oral  
**Contribution authors:** Nicholas Aherne (University of Groningen)

For centuries Roman sarcophagi have captured the attention and imagination of scholars. Despite the last four decades witnessing significant advancements in the interpretation of sarcophagi iconographies, disproportionate



focus remains on mythological and figurative marble sarcophagi which compose a small proportion of the empire-wide corpus; their immediate funerary context is often neglected. This paper contributes to filling such gaps by breaking disciplinary boundaries through a holistic and contextual study of the sarcophagi of Roman Tyre. Methodologically, it is inspired by Meinecke (2014) Sarcophagum posuit, Newby (2018) The Grottarossa Doll and her Mistress, and my doctoral research which comprises a catalogue and analysis of the stone, lead, terracotta, and wooden sarcophagi of Phoenicia, specifically, their ritual function. Tyre yields some exceptionally well-preserved contexts, permitting a comparative analysis of ‘image’, ‘text’, and ‘body’. Whilst most of the sarcophagi and their decoration date to the second and third centuries AD, nearly all their inscriptions belong to later phases of use in the fifth and sixth centuries AD. The burials per sarcophagus average 12 but reach the high 30s. How does such evidence alter our interpretation of the sarcophagi? What does it mean for their functionality when several individuals were represented by a single imago or nomen? And how did this shape the way the living commemorated the dead? Another novel facet of this paper is that ‘image’ and ‘text’ transcend the exterior surfaces of the sarcophagi to encompass the interiors. Objects, such as, coins, lamps, figurines, and jewellery, deposited as grave goods, possess iconography and inscriptions that represent and commemorate the dead. Some objects exhibit a cultural consumption, similar to the sarcophagi themselves, and others, a seemingly contrasting one. Thus, this paper explores to what extent the sarcophagi and their contents with differing materialities and audiences operated toward the same end in funerary ritual.

1110. SENSING DEATH: LATE ANTIQUE SARCOPHAGI IN THEIR RITUAL CONTEXT

**Contribution format:** Oral  
**Contribution authors:** Alexis Gorby (University of Oxford)

The traditional approach to sarcophagi places an emphasis on iconography, which in turn, emphasizes the visual experience of the objects. However, recent contextual approaches to sarcophagi indicate many sarcophagi were invisible or partially visible. How do we reconcile this emphasis on iconography while many of the images could not be seen? This bias towards understanding sarcophagi as primarily visual objects is an invention of modern historiography due to the decontextualization of the objects. Rather, by placing sarcophagi back into their original ritual and burial context, the multisensory nature of the objects is revealed. By examining the textual, bioarcheological, and epigraphic evidence of late antique sarcophagi, the senses of smell, sound, and touch become a vital part of how the objects were experienced. Moreover, how this multisensory experience of sarcophagi was interpreted by the audience, or in other words the material socialization of the objects, indicates funerary rituals were not fully-Christianized during this period despite the change in iconography. As multisensory objects, the role of sarcophagi in funerary rituals went beyond providing a visual reflection of the Christian ideal of a beatific afterlife and salvation. The smells, sounds, and touch of sarcophagi helped dictate and structure normative behaviours and emotional responses during funerary rites. These behaviours and responses did not always align with the theological ideal of what a Christian funeral should be. In placing sarcophagi back into their ritual context, a more nuanced understanding of late antique funerals and death emerges.

2303. (RE)CONTEXTUALIZING ETRUSCAN SARCOPHAGI

**Contribution format:** Oral  
**Contribution authors:** Laura Nazim (Ruhr-Universität Bochum)

The so-called Late Etruscan stone sarcophagi, whose beginnings date back to the mid-4th century BC and which were produced for around 200 years, mainly in southern Etruria, are characterized by their coffins decorated with figural reliefs or paintings that cover a range of different topics. The lids can also take various forms: in addition to the roof lids, the life-size figures, which either lie flat on their backs or sideways and represent the deceased, are the norm. Since the early excavations of the 19th century, numerous Etruscan chamber tombs with sarcophagi burials have been discovered. However, due to the methods and interests of that time, the focus was almost exclusively on the sarcophagi defined as ‘important’ back than. These mainly include those examples with figurative narrative decoration, which were treated as isolated art objects. While these sarcophagi were scattered throughout the world in private and public collections, the graves were either not documented at all or only insufficiently, and knowledge of the contexts was lost. Although modern research is now including the known hypogea of various families, the locations of individual sarcophagi are still unknown, or their graves are not being researched due to earlier looting and destruction. These contexts in particular can provide important information about the socialization with other forms of burial, the positioning of the individual sarcophagi in the burial chamber or differences in the custom of burial in family graves. The aim of the lecture is to provide an overview of Etruscan burial contexts from the 4th to 2nd century BC. On the basis of individual graves, it will be exemplified which potential for answering questions regarding the hierarchization and social position of individuals within a gens can be gained from the contexts, and which social differences and groups can be determined.

390. THE TRAVERTINE SARCOPHAGI AT HIERAPOLIS OF PHRYGIA: FORMS, PRODUCTION, AND DISPLAY

**Contribution format:** Oral  
**Contribution authors:** Anna Anguissola (University of Pisa | Accademia Nazionale dei Lincei, Centro Interdisciplinare Linceo Giovani)

During the peak of its economic and cultural prosperity in the 2nd and 3rd centuries CE, the roads leading to Hierapolis of Phrygia (Turkey) were lined with hundreds of tombs, making them a defining feature of the urban landscape. Thousands of travertine sarcophagi and hundreds of marble ones are dispersed throughout these funerary areas, many still in their original positions and accompanied by related objects and inscriptions. This paper presents the preliminary findings from seven seasons of fieldwork aimed at cataloging the sarcophagi of Hierapolis, as part of the Italian Archaeological Mission. It focuses specifically on approximately 1,500 travertine sarcophagi from the northern necropolis, the largest of Hierapolis’ burial sites. The paper begins by exploring the understanding, function, and economy of sarcophagi, linking the surviving artifacts with the funerary inscriptions from the same contexts. It also addresses the challenges of creating a comprehensive corpus from such a large number of finds and considers how this collection can serve as a methodological framework or a point of comparison for other sites. Finally, the paper examines a small group of around 100 travertine sarcophagi with figural motifs. The study of their form, typology, and style in relation to marble sarcophagi reveals general trends in Hierapolis’ funerary displays and highlights specific features of travertine production. This medium seems to have allowed greater flexibility in the selection of subjects, often linked to the professional sphere. These examples provide insight into the practices of sculptors who likely worked with both materials, adapting to their patrons’ needs and frequently transferring typologies and forms between travertine and marble. The burial grounds of Hierapolis offer unique perspectives on workshop practices, technologies, and the social dynamics of the imperial Greek East, shedding light on how personal and social identities were negotiated in the funerary sphere.

538. SARCOPHAGUS PRODUCTION IN ROMAN UPPER MACEDONIA: LOCAL WORKSHOPS, IMPORTED TRADITIONS, AND TRADE DYNAMICS

**Contribution format:** Oral  
**Contribution authors:** Ines Ferjan (University of Edinburgh)

This paper examines the diverse production models of Roman-period sarcophagi in Upper Macedonia, with particular focus on the interaction between local craftsmanship and imported sculptural traditions. Drawing on archaeological evidence, the study explores the role of Thessaloniki as a trade hub and the extent to which local workshops adapted to or incorporated external artistic influences. Through the analysis of marble provenance – currently approached primarily at a macroscopic level - carving techniques, and workshop practices, the research identifies three principal models of sarcophagus production. The first model encompasses fully imported sarcophagi, which arrived in Upper Macedonia as finished products, often produced in major Mediterranean workshops and transported via established trade networks. The second model examines part-worked imports, which reached the region in a roughed-out state, allowing local sculptors to complete the final carving and decoration. This process enabled a degree of customisation while maintaining the prestige of high-quality imported marble. The third model focuses on locally crafted sarcophagi, produced entirely from local material, reflecting how Macedonian artisans adapted external stylistic influences. To provide a broader perspective, the study also incorporates comparisons with selected sarcophagi from the neighbouring province of Moesia Superior, where similar production models are observed. By highlighting workshop variability, the role of itinerant craftsmen, and the economic mechanisms underlying sarcophagus distribution, this study provides a more comprehensive understanding of funerary art, consumer-driven economic decisions, and production organisation in Upper Macedonia during the Roman period.

153 DYNAMICS OF GREEK COLONISATION: CURRENT RESEARCH AND NEW PERSPECTIVES

**Session theme:** 6. Intertwining archaeology, heritage, and museums  
**Session format:** Regular session  
**Session keywords:** Italy, fieldwork, museum, settlements, artefacts, conservation  
**Session organisers:** Lieve Donnellan (The University of Melbourne) – Marco Stefano Scaravilli (Direzione Regionali Musei Nazionali Calabria)

SESSION ABSTRACT

The dynamics of Greek colonisation have been much discussed over the last decades. Increasingly, it is understood that it has not been the uniform process that is described in ancient sources. Recent archaeological investigations



have added much more depth and complexity to the discussion. Especially the presence of native populations and complex trajectories towards urbanisation and the role of the economy have come to the front. The aim of this session is two-fold: provide an opportunity to discuss specific case studies from Italy and Sicily as well as invite discussions from other regions to offer a comparative perspective. We specifically encourage participation from different institutional participants to open dialogues between research and conservation, legislation and other relevant aspects. Through discussion of specific case studies between different institutional partners and researchers about current research, results and their historical significance, we hope to provide perspectives for future research and heritage conservation related to sites of Greek interaction overseas.

CONTRIBUTION ABSTRACTS

706. THE PLAIN OF GIOIA TAURO SURVEY: THE CHORA OF MEDMA (2018-2024)

**Contribution format:** Oral  
**Contribution authors:** Lieve Donnellan (University of Melbourne)

A new project to conduct a systematic ceramic survey in the Plain of Gioia Tauro was launched in 2018 with the Free university of Amsterdam. During the consecutive years, with different institutional partners (Aarhus University and University of Melbourne), different parts of the Plain surrounding Ancient Greek Medma were investigated. This paper will present some preliminary results concerning settlement evidence and other human activity, which can be dated to the Neolithic up until Medieval times. The main period of focus is the transition between the Final Bronze Age/Iron age and the traditional date of arrival and consolidation of Greek colonists in the mid-to late 7th century BCE. The archaeological record testifies to a gradual centralisation, a phenomenon that has been generally observed in Greece and Italy, however, the date appears to be later than would normally be expected. The discussion will also highlight methodological issues, mainly due to severe interventions in the subsoil, such as drainage and resource exploitation.

91. SETTLEMENT HISTORY AND DYNAMICS IN THE PLAIN OF GIOIA TAURO FROM AROUND 1000 TO 250 BCE

**Contribution format:** Oral  
**Contribution authors:** Anna-Elisa Stümpel – Lieve Donnellan (University of Melbourne)

In this contribution, we present preliminary results from LiDAR data analyses of the Plain of Gioia Tauro (PGT) project. The PGT project is concerned with the settlement history in the plain from around 1000 to 250 BCE. Since past research largely focused on Greek migration (‘colonisation’) and non-local Greek material culture, many aspects are poorly understood and results regarding local urban trajectories and processes of settlements in the plain are unilaterally Greek. The research of our contribution aims at gaining a more detailed, objective, and holistic understanding of the urbanism of settlements in the PGT in the long-term. For doing so, publicly available raw LiDAR data has been collected from the Italian Ministero dell’Ambiente e della Sicurezza Energetica and visualised as Analytical Hillshade (AHS), Multihillshade (MHS), and Skyview Factor (SVF). These visualisations are used together with satellite imagery for effectively surveying the plain remotely in a GIS environment. Focus has been put on areas in the vicinity of known sites, natural features, and marginal areas in the terraced hilly inland of the PGT, which have sustained fewer intensive anthropic alterations. Future work, however, will verify these areas more systematically. Thus far, the LiDAR analysis has yielded positive results in identifying sites of potential historical and archaeological interest dating to the above outlined timeframe. It was possible to recognise a range of features and areas, such as structures of edifices, burial grounds, and features built without (durable) building materials (e.g., canals and earthworks), previously unknown to archaeological research. Some of these appear to be related to a particular period, such as possible apsidal Iron Age huts. Others possess a less unambiguous chronology while detections need to be generally groundtruthed. Concluding, LiDAR data constitute a powerful addition to archaeological research, but there are shortcomings too, such as assessing the chronology of features.

135. THE CERAMICS OF THE PLAIN OF GIOIA TAURO: UNRAVELLING ECONOMIC DEVELOPMENTS UNDER THE 1ST MILLENNIUM BCE

**Contribution format:** Oral  
**Contribution authors:** Viktor Linusson (The University of Melbourne)

The Melbourne surveys in the Plain of Gioia Tauro (PGT: 2018–2024, Calabria) have distinguished an intensively used chora of the Greek-style settlement of Medma. Our survey finds even out previous excavation biases leaning towards non-Indigenous and urban sites, and therefore constitute important means with which to reconstruct economic developments in this coastal plain. However, since the survey record is low-density and contains few diagnostic potsherds, any ceramic analysis needs to concentrate on its best-preserved parameter: clay fabrics.

This paper first delivers a petrographic identification of the ceramics from a selection of PGT sites dating to the Early Iron Age 1 to the Hellenistic period (c. 10th–3rd centuries BCE), contributing new hypotheses on local ceramic production organisation. Separately, consumption dynamics are explored for each site. The results aid not only the broader project to reconstruct settlement patterns in the Plain but provide new insights into human mobility and exchange networks in southwestern Calabria.

2188. MAPPING ANCIENT MEDMA: SURVEYS, LEGACY DATA INTEGRATION, AND REMOTE SENSING FOR THE URBAN TOPOGRAPHY

**Contribution format:** Oral  
**Contribution authors:** Marco Stefano Scaravilli (Direzione Regional Musei Nazionali Calabria) – Rodoldo Brancato (Università Federico II di Napoli)

This presentation aims to discuss the preliminary results of the archaeological mapping of Medma, a sub-colony of Locri located within the territory of Reggio Calabria (Italy). The project integrates remote and proximate sensing techniques with a systematic reassessment of archaeological legacy data, including historical photographs, satellite imagery, and UAV photogrammetry, to reconstruct the urban topography of the ancient polis. Medma’s known archaeological record is fragmented, consisting of disiecta membra, such as sections of its urban plan, residential quarters, sacred areas, and necropoleis, primarily from the Classical and Hellenistic periods. Central to this effort is the extensive magnetometry survey conducted in 2022, covering 10 hectares within the archaeological park. This survey provided essential geophysical data to complement the legacy datasets. By systematically digitizing and georeferencing the available data in a GIS environment, the research addresses critical aspects of Medma’s urban layout, the extent of the built environment, and the topographical alignment and coherence of its city walls. The integration of these methods offers new insights into the spatial organization and development of the ancient city, facilitating a more comprehensive understanding of its historical significance.

2000. STATUETTES AND THE DIVINE. NEW LIGHT ON THE CULT OF MEDMA’S “CALDERAZZO” SANCTUARY THROUGH THE SYSTEMATIC STUDY OF TERRACOTTA OFFERINGS

**Contribution format:** Oral  
**Contribution authors:** Ágnes Bencze (Pázmány Péter Catholic University)

In the framework of a collaboration started in 2017, the international research group named “Cercoloc” (Pázmány Péter Catholic University - Accademian Nazionale dei Lincei - École Française de Rome), began a project consisting in the systematic documentation and study of the terracotta offerings unearthed between 1909 and 1913 on the site of the largest sanctuary of ancient Medma, the one located in the district named “Contrada Calderazzo”, Rosarno (Calabria). Practically we have taken over the intriguing but extremely difficult task of the systematic publication of all figural terracottas provenant from Paolo Orsi’s “great favissa”. The project is carried out in a close collaboration with the Soprintendenza ABAP responsible for the territory and with the Museums in charge of the conservation of the finds (Museo Archeololgico Nazionale di Reggio Calabria, Museo Archeologico di Rosarno). In the current state of the work the number of items (fragments and some complete specimens) catalogued for the period which goes from the last decades of the 6th century to the third quarter of the 5th century BC, reaches beyond 4.000 pieces and already gives a much richer and more complex view of the repertory, than it was believed in the past. In the course of the documentation work we also recognized and reconstructed a nearly life-size terracotta statue of Athena Promachos, buried together with the smaller statuettes on the same site.

1437. AT THE HEART OF A NEW COMMUNITY: THE NECROPOLIS OF MÉTAUROS IN THE 7TH CENTURY BCE

**Contribution format:** Oral  
**Contribution authors:** Clara Maria Hansen (University of Vienna)

Building on the detailed study of two sectors of the necropolis (Canerossi and Musumeci plots), this paper examines the earliest funerary documentation of Métauros, present-day Gioia Tauro (c. 700-580 BCE). In the early generations, the Métauros community adopted a unique funerary ritual that blended allogenic elements with local traditions. This fusion is also reflected in the material culture, where locally typical objects coexist with non-local items from Greece and the eastern Mediterranean, highlighting the community’s full engagement in broader Mediterranean exchange and interaction dynamics. While similarities can be found in other newly established western communities such as Pithekoussai and Mylai, the funerary practices of Archaic Metauros are notably distinctive, serving as a clear example of the complex interplay between continuity and change in response to Mediterranean mobility. This paper explores the intersection of local tradition and increasing mobility of people, goods, and ideas during the 7th and early 6th centuries BCE. By asking how earlier local tradition may have been preserved within the frame of the funerary sphere and how this was impacted by the reception of new objects and practices, this study offers a highly granular and bottom-up perspective on how the processes



of ‘Greek Colonization’ were negotiated at the local level.

1465. RITUALS IN CHANGE: BURIAL PRACTICES IN LATE ARCHAIC AND EARLY CLASSICAL MÉTAUROS

Contribution format: Oral  
Contribution authors: Bettina Bernegger (KU Leuven, University of Melbourne)

The use of the Métauros necropolis spanned over two centuries. While most known burials date to the Early Archaic period (700-580 BCE), a notable group of tombs belongs to the late Archaic and early Classical periods (c. 580-480 BCE). During this time, the communities of the Calabrian poleis experienced significant historical changes: the largest and most influential poleis developed monumental forms and consolidated territorial control, achieving full city-state status. These social and political transformations are mirrored in the funerary practices of the Métauros necropolis: in this period, the local community gradually abandoned many traditional burial customs in favor of the rituals practiced in the major poleis of Locri Epizephyrii and Reggio, thus reflecting its growing involvement within the rapidly evolving social and political dynamics in the region. Drawing on the evidence from the Canerossi and Musumeci plots, this paper examines the role of Métauros in the shifting social and political dynamics of the early Classical period and their impact on ritual behaviours and funerary representations of community and local identity. In doing so, Métauros serves as a link in the understanding of smaller communities in the Greek world of Southern Italy and how connectivity can be understood through archaeological funerary studies.

1920. MÉTAUROS (GIOIA TAURO, RC): RITUALS AND FUNERARY REPRESENTATIONS OF A MEDITERRANEAN COMMUNITY OF THE EARLY 1ST MILLENNIUM BCE

Contribution format: Oral  
Contribution authors: Francesco Quondam (Universität Wien) – Alessandra Sperduti (MuCiv - Museo delle Civiltà)

The necropolis of Métauros (present-day Gioia Tauro, RC) represents the most significant funerary context of the Archaic period in Calabria: between 1973 and 1984, over 1,200 tombs were excavated, dating from the early 7th to the early 5th century BC. Still largely unpublished, the necropolis has been the subject of a research project since 2022, led by the University of Vienna (MAP - Métauros Archaeological Project), focused on the study and complete publication of the Archaic necropolis contexts. Métauros serves as one of the most intriguing examples of Mediterranean mobility dynamics during the early first millennium BC: identified as a Greek polis in later Roman-written sources, the settlement likely emerged from both long- and short-distance migrations, with a strong orientation towards Mediterranean trade, fueled by the rapid growth of trading hubs in the Lower Tyrrhenian basin, where just a few generations earlier the community of Pithecusa (Ischia) had settled. The necropolis of Métauros reveals a dynamic context with strongly original features. While it shares certain ritual expressions with other newly-formed communities, such as nearby Sicilian Mylai, it autonomously manifests its own distinctive identity and cultural dynamics. In coordination with the subsequent work of Hansen and Bernegger, this paper aims to provide a general overview of the Archaic necropolis based on a comprehensive review of the excavation documentation and the study of approximately one-quarter of the investigated tombs. Special attention will be given to the integration of archaeological and anthropological data, with the aim of offering an integrated reconstruction of the ritual systems in relation to the gender and age of the deceased, both synchronically and in their diachronic variations.

1815. ENTANGLED BY DRINK: FEASTS AS LOCI OF SOCIAL INTERACTION AND TRANSFORMATION AMONG WESTERN SICILIAN COMMUNITIES IN THE FIRST MILLENNIUM BCE

Contribution format: Oral  
Contribution authors: William Balco (University of Wisconsin-Milwaukee)

Local Sicilian populations were exposed to new ideas, behaviors, and material culture during the first millennium BCE. Mercantile exploits, political interventions, and military campaigns, among other events, entangled local and foreign populations, irreversibly transforming all involved. One behavior crosscutting all these events was feasting. Feasts were loci of displays of wealth, power, prestige, and identity, reinforcing extant social norms while accommodating and adopting new ones. Consequently, changes to feasting behaviors, hardware, food, and drink reflect choices by individuals living among socially entangled communities. This paper explores commensal hardware, the vessels used during the feast, recovered at Sicilian population centers occupied during the Late Iron Age and Archaic periods. These vessels attest the incorporation of new concepts of what was considered “proper” participation in the feast. The incorporation of Aegean and Levantine commensal vessels at indigenous Sicilian sites was followed by the adoption of vessels incorporating combinations of Aegean, Levantine, and indigenous Sicilian forms and decorations. These vessels redefined displays of wealth, power, prestige, and identity. Exhibiting such vessels, through active use or static display, visibly communicated status to other participants

at the feast. This suggests a transformation of indigenous Sicilian feasting behaviors in response to the complex social entanglements resulting from the establishment of Greek colonies and Phoenician emporia. Consequently, feasts were loci of both social interaction and transformation, incorporating and displaying new and modified social norms reflective of redefined cultural identities.

824. POWER AND COEXISTENCE ON ISSA: ANALYZING GREEK-INDIGENOUS RELATIONS ON THE ISLAND OF VIS IN THE EASTERN ADRIATIC

Contribution format: Oral  
Contribution authors: Filip Budic (Department of History, University of Zagreb)

Greek engagement with the Eastern Adriatic emerged relatively late compared to other Mediterranean areas. While sporadic evidence appears from the 6th century BC, more substantial interaction between Greek traders and local populations is discernible from the 5th century BC onward. A significant focal point for this contact along the eastern Adriatic coast was the island of Vis within the central Dalmatian archipelago. Diodorus Siculus (XV, 13, 4) attributes the founding of the settlement of Issa to the Syracusan tyrant Dionysius I during the 4th century BC. The precise establishment date remains uncertain, with scholarly opinions diverging. Some, relying on historical sources, posit a founding date in the early 4th century BC, while others, based on archaeological finds, suggest a later date. The Greek settlement on Vis occupied a strategically advantageous bay in the Adriatic. Unlike the neighbouring island of Pharos, where written sources detail a rapidly escalating conflict between Greek settlers and the indigenous population (Diod. Sic. XV, 14, 1-3), the initial interactions between Greeks and natives on Vis remain obscure. Scholarly discussion on this topic typically centres on limited epigraphic and archaeological evidence. The fate of the pre-existing Iron Age indigenous population across the remainder of the island requires further investigation. Vis is a relatively small island (about 90 km2), with limited fertile land that occupies only one-tenth of the entire area. This suggests that the Greeks required control of the entire island to participate in Adriatic trade networks effectively, but also raises numerous questions concerning local agricultural strategies and the nature of Greek-native relations. A recent field survey has indicated a longer period of coexistence between Issa and hillfort settlements than previously assumed. Vis Local History Museum, established this year, offers significant potential for future research into the Greek and native presence on the island.

1493. COLONIES, CAVES AND WORSHIP IN NORTH AEGEAN

Contribution format: Oral  
Contribution authors: Fotis Georgiadis (Ephorate of Palaeoanthropology - Speleology, Hellenic Ministry of Culture)

Excavations and research projects of the last decades made new data available and opened new discussions on Greek colonisation of north Aegean. Traditional assumptions have been challenged and new perceptions were introduced. In the course of this ongoing discussion, it is now widely accepted that the archaeological record reflects the complexity of the settlement patterns and the multiplicity of the agents involved. Although the presence of imported pottery does not equate to the presence of settlers, and the written sources on colonisation are fragmentary and usually significantly later than the facts they refer to, the practice of Greek cult rituals is undoubtedly indicative of the presence of Greeks on the north Aegean coast. The role of religion and extra-muros sanctuaries in the phenomenon of colonisation has been discussed with regard to the colonies of Italy and Sicily. The foundation of extra-muros sanctuaries, such as cult-caves, has been interpreted as a means of appropriation of the territory, a signifier of the possession of the previously foreign land. Recent research carried out in cult-caves in the northern Aegean has provided new evidence supporting the conclusion that the establishment of archaic sanctuaries in caves, where Greek religious practices were performed, took place in certain cases within the first generations of the colonial settlement. The paper will discuss specific case studies of cult-caves in north Aegean and their association with the relevant colonies.

520. MISSING PARTS, MISSING ANSWERS: CASE STUDY OF BURIALS FROM THE SANCTUARY VIKTORIVKA - I IN UKRAINE

Contribution format: Oral  
Contribution authors: Daria Hemberzhevsk (Petro Mohyla Black Sea National University)

The archaeological site of Viktorivka–I is a significant Greek cultural complex located on the right bank of the Berezan Estuary in Ukraine’s Mykolaiv region. It comprises two main parts, which were active during the Late Archaic, the Classical, and the Early Hellenistic periods — a sanctuary in the northern part of the site and a settlement in the southern one. The sanctuary stands out for its unique construction, featuring ash mounds and ash pits set within artificially dug complex pits carved into the bedrock. Evidence from its construction and materials suggests that the sanctuary was dedicated to the cults of Demeter and Apollo. In Ash Pits No. 1 and No. 2, dated to the mid-6th to early 5th century BCE and late 4th to early 3rd century BCE, respectively, eight burials



were uncovered, including three paired burials. The individuals ranged in age from 6–8 to 50–55. The remains display injuries from sharp and blunt objects, as well as possible arrow wounds. However, their most striking feature was the possible dismemberment: missing skulls, chopped limbs, and partial or complete absence of limbs. One paired burial was arranged in a “package” formation. All burials, except for a child’s, lacked grave goods; the child’s burial contained vessel fragments and a stone pendant possibly linked to the Yamna culture (3600–2300 BCE). Two theories exist regarding the burials: one is that the ritual complex was built over an older burial ground (possibly a mound), while the other suggests that the burials are contemporary with the sanctuary and may represent human sacrifices. In either case, findings indicate atypical behaviour for the bearers of ancient Greek culture. This could point to either a rite of neutralization of earlier burials or the human sacrifice of community members(?), as part of a ritual practice unknown for centuries.

896. MEDMA AND ITS URBAN LAYOUT; NEW DATA, PROBLEMS, PERSPECTIVES

**Contribution format:** Poster  
**Contribution authors:** Gianluca Sapio (Ministry of Education)

The last organic work on the Locrian sub-colony of Medma dates back to 1981; since then numerous archaeological investigations have followed one another especially on the plateau of the ancient city with scientifically planned excavation campaigns, but largely with data obtained from occasional work. A comprehensive rereading of this information today certainly allows us to enrich with new pieces the “mosaic” of knowledge on the topography of the ancient city. The contribution will illustrate some preliminary data from unpublished works that will allow us to reread some scientific problems that are still open; in particular: 1) the shape of the ancient city, with its limit on the plateau towards the east, in the area of the current Cucchiararo district and along via Medma, the relic of a probable ancient longitudinal axis that crossed the whole of Pian delle Vigne; 2) the spatial organization of the area between the Calderazzo streets and the sanctuary of the former municipal slaughterhouse (in the modern town corresponding to the streets Sorrentino, Medma, Omero, Erodoto and Talete, piazza Paolo Orsi and Rion. Europa); this sector must certainly have been one of the most monumental sectors of the ancient city.

2467. CRYPT 631 FROM VOLNA-1 NECROPOLIS: COMPLEX APPROACH TO THE ANALYSIS OF GREEK-BARBARIAN RELATIONS IN EARLY HELLENISTIC PERIOD IN THE BOSPORUS

**Contribution format:** Poster  
**Contribution authors:** Tatiana Shvedchikova – Irina Saprykina – Nikolay Sudarev (Institute of Archaeology RAS)

In 2016-2018, the Volna 1 necropolis was studied on the territory of the Taman Peninsula due to salvage excavations. The necropolis and the associated settlement of Volna 1, appeared at the very beginning of the Greek colonization of the region during the so-called «great Greek colonization». In total, more than 1,200 burials were studied, belonging to different periods, starting from the 6th century BC. Collective burials in adobe crypts were atypical for a burial site. One of them, crypt 631, which can be associated to the 30s of the 4th century BC - the first quarter of the 3rd century BC, contained the skeletons of 11 people and also the outstanding composition of the burial inventory. The vessels typologically can be attributed to the works of the Athenian workshop II9, the find of a gold crown is unique. Analysis of the chemical composition of non-ferrous metals of the accompanying inventory items with traces of blacksmith finishing showed that the bronzes used are most likely based on the use of repeatedly remelted non-ferrous scrap metal, including conventionally “Greek”. Isotopic analysis of the ratios of  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$ ,  $^{87}\text{Sr}/^{86}\text{Sr}$  of bone tissue for 7 individuals from the burial was carried out. The range of values of bioavailable strontium can be designated as the interval 0.709146–0.709545. Taking into account the background indicators of the ratio of strontium isotopes, it can be concluded that the individuals show similar values and can be considered local residents. The indicators of young men are excellent, which can be interpreted as a non-local indicator. The results of the comprehensive study are important for understanding the Greek-barbarian relations (the process of mixing/assimilation of the population) during the late classical – early Hellenistic period in the Bosphorus. Funded by RNF № 23-18-00196

154 ARCHAEOLOGY BENEFITTING PEOPLE AND PLACES: WHAT WORKS? WHAT’S BEST? WHAT NEXT? SHARING SUCCESSES, LEARNING LESSONS AND EXPLORING IDEAS

**Session theme:** 6. Intertwining archaeology, heritage, and museums  
**Session format:** Regular session  
**Session keywords:** Public benefits, Archaeology, Community engagement, Best practice, Social value  
**Session organisers:** Jesús Fernández Fernández (University of Oviedo) – Francesco Ripanti (University of

Birmingham) – Carenza Lewis (University of Lincoln)

SESSION ABSTRACT

It is an exciting time to be interested in the social value of archaeology, as ways in which archaeology and archaeologists can benefit wider society are becoming increasingly wide, encompassing health, education, knowledge, skills, community, economy, environment and more. An important way to increase these benefits is by sharing effective practice, emerging insights and new ideas. This session, organised by the EAA Public Benefits of Archaeology Advisory Committee, calls for papers on initiatives that aspire to, and/or are succeeding in, benefiting people and places through archaeology. Bringing together the widest possible range of experiences, insights and ideas into one EAA session will enable anyone and everyone interested in the public benefits of archaeology draw on the wealth of knowledge, ideas and insights that exists in the EAA ‘hive mind’. The aim is to help make future initiatives the best they can possibly be. This session welcomes presentations on projects, programmes and proposals of any style, shape or form, whether these have already taken place, are currently being delivered, or are envisioned for the future. Papers offering insights, inspiration and cautionary tales are all welcome, as are papers offering wider conceptual overviews of the opportunities and threats facing archaeology as a publicly beneficial practice in the future. We are particularly keen that papers should represent experience from all parts of Europe, and are interested in papers that seek to elicit best practice in as many different contexts as possible.

CONTRIBUTION ABSTRACTS

419. HERITAGE TRAIL: IDEA TO REALITY, THE SUCCESS AND CHALLENGES

**Contribution format:** Oral  
**Contribution authors:** Alexandra Latham (Arcadis Consulting Limited)

The opportunities community archaeology provides are well established, within this, there is a role for heritage organisations to support local authorities and clients in taking ownership and developing the local archaeological resources for example by creating heritage trails. The commercial cultural heritage team within Arcadis Consulting (UK) Ltd was commissioned to create and implement a heritage trail around a small town in Wales (UK). The client had announced their intentions for the trail in their Town Regeneration Master Plan. Arcadis and our client recognised the importance of the economic impact and the social value of archaeology in connecting local people and visitors to the town’s heritage. The presentation will focus on the lessons learned during the development of the trail which included the examination of the material previously used and the technologies and resources that were used to support inclusion, site accessibility and challenges of the proposed trail. Some of the lessons learned included working with and managing the client and stakeholder expectations, what assets to include, use and re-use of display boards, feasibility and practicality of assets and the route, operating when resources are constrained, working within the client’s scope, local economics and providing a free experience. The trail has now gone live, and initial feedback from some participants has highlighted where improvements can be made such as the legibility and readability of the map, developing better information about the assets and increasing awareness of the trail.

1974. THE VALUE OF OUTDOOR HERITAGE: A CULTURE AND HERITAGE CAPITAL FRAMEWORK FOR THE HISTORIC ENVIRONMENT

**Contribution format:** Oral  
**Contribution authors:** Callum Reilly (National Trust) – Tatiana Cantillo Garcia – Aditi Samant Singhar (University of Exeter)

The rural landscape is characterised by the entanglement of nature and culture. The simplistic association between rurality and nature, however, has tended to obscure the contribution of cultural heritage to the landscape. Moreover, the use of natural capital approaches partially subsumes the value provided by cultural heritage, potentially overlooking the trade-offs in managing nature and heritage jointly. Although these approaches have enabled a quantitative understanding of the benefits provided by natural aspects of the environment, no equivalent framework has been firmly established for cultural heritage. Within the discourse on heritage values, economic value can be considered a particular form of social value and is therefore apt for inclusion alongside cultural approaches. This paper will explore how an economics-based approach could improve our understanding of the contribution of outdoor cultural heritage towards delivering public benefits, drawing on the AHRC/DCMS-funded Valuing Outdoor Culture and Heritage Capital project. The project brings together economists and heritage professionals to develop a framework for assessing and enhancing the value of cultural heritage in outdoor environments. We propose a systematic framework enabling the more precise description of outdoor heritage stocks and the benefits they provide for individuals and wider society. This ‘taxonomy’ has been co-developed with involvement of professionals from the historic environment sector and tested through intervention-based experiments conducted in the Lake District World Heritage Site and the South Downs National Park in England.



The framework will provide new methodologies to disentangle the value of outdoor culture and heritage assets from that of the ‘natural environment’. It is expected that this will be a useful mechanism for identifying, quantifying and communicating to stakeholders the public benefits delivered by outdoor cultural heritage. More fundamentally though, it provides a robust decision-making tool for heritage management, enabling the benefits of heritage to be delivered more effectively and equitably.

**160. EXPLORING COMMUNITY PERSPECTIVES ON MARITIME CULTURAL HERITAGE IN SOUTHEASTERN LACONIA**

**Contribution format:** Oral  
**Contribution authors:** Athanasia Papadimitriou (Ionian University)

This paper examines the relationship between the local community and cultural heritage in Southeastern Laconia, focusing on key sites such as Pavlopetri, Ancient Asopos, and several shipwrecks in the area. With the use of ethnographic research and systems theory, the study explores how, and to what extent, the community is involved, aiming to propose a framework for sustainable cultural management that is adapted to the historical context of the region. Through targeted questionnaires and interviews, the study investigates the community’s awareness of underwater archaeological sites, their comparison with terrestrial sites and the degree of local involvement in the management of underwater heritage. Additionally, it examines the perceptions of relevant authorities, the social and economic impact of maritime archaeological heritage and future aspirations for enhancing community participation while integrating local perspectives into a holistic management framework for these cultural assets. A primary focus of this research is the connection between underwater heritage and local identity. It suggests that empowering the community through active participation can build stronger bonds with these sites. By addressing practical challenges and promoting collaborative strategies, the study highlights the potential of a community-centered approach for the sustainable preservation and promotion of underwater cultural heritage. In conclusion, this study contributes to the broader field of heritage management by presenting Southeastern Laconia as a case study. It demonstrates how local participation, when combined with archaeological and historical contexts, can support sustainable and effective practices for the conservation of cultural heritage.

**862. BUZZWORD TO BENCHMARK - HOW THE PRIVATE SECTOR IS ADAPTING TO SOCIAL VALUE AND THE IMPLICATIONS ON HERITAGE WORK**

**Contribution format:** Oral  
**Contribution authors:** Emilia Zelewicz – Jack Doyle (Arcadis Consulting Limited)

Social Value is becoming increasingly prominent within the UK corporate sphere. Arcadis Consulting (UK) Ltd must adapt to growing client demand for Social Value, driven by government legislation like the 2012 Social Value Act and PPN 06/20, which mandate a 10% weighting for Social Value on government contract bids. This demand also reflects the increased valuing of local community needs and the impacts of climate change and energy transition infrastructure. This trend is mirrored in the heritage industry. This paper reviews the adoption of Social Value within the UK’s heritage sector, tracing its evolution since 2016 when Professor Sian Jones noted that “scientific and aesthetic values still eclipse social values.. Arcadis is embedding Social Value into its operations, transitioning it from a ‘nice to have’ to a core value. The annual Arcadis research project for new graduates has contributed to the business’s understanding and strategy for Social Value delivery; which this paper draws on. The Cultural Heritage Team at Arcadis is adapting to this changing environment. This paper will explore how a multi-disciplinary organisation integrates Social Value in procurement and project delivery, the role of heritage, and how heritage work can be central to Social Value delivery. CIfA has emphasized the social value of archaeology in terms of knowledge, placemaking, wellbeing, and inclusivity. The next step is addressing sustainability and net-zero targets. This paper will highlight how future heritage initiatives must adopt a sustainability focus to enhance public benefits, and foster connections between our past and future. Finally, the paper will analyse the development of Social Value practice within the commercial heritage sector, considering digital tools to measure social impact, community valuation of heritage, and the importance of amplifying community consultation during the planning stages to meet sustainability and net-zero targets while fostering connections between the past and future.

**1076. IS OUR WORK BENEFICIAL FOR THE TERRITORY? REFLECTIONS ON OUR KNOWLEDGE TRANSFER PRACTICES**

**Contribution format:** Oral  
**Contribution authors:** Paloma Sánchez-Broch – Margarita Fernández Mier – Jesús Fernández Fernández (Universidad de Oviedo)

Since 2014, the LLABOR-Social Landscapes research group at the University of Oviedo (Spain) has developed various knowledge transfer experiences. Through diverse activities implemented in different contexts and aimed

at various audiences, our goal is to socialize and create channels for the co-construction of knowledge, seeking to ensure that our research provides a public benefit to the places where archaeological research take place. We know that archaeology and heritage have great potential as innovative tools for the management and social and economic development of rural areas. However, we still do not know the impact of our proposals on the territory and its inhabitants. Recently, we have implemented a line of work for reflection and analysis of the influence of our work and the communities we collaborate with: neighbours, schoolchildren, teachers, among others. In this communication, we intend to share our impact evaluation strategies, with which we seek to develop a replicable model in different contexts, understand and self-evaluate our practices, and find innovative and effective solutions for heritage education.

**1795. COMMUNITY ARCHAEOLOGY IN THE TRIQUETRA PROJECT - CASE STUDY OF THE BRONZE AGE SETTLEMENT IN SMUSZEWO (POLAND)**

**Contribution format:** Oral  
**Contribution authors:** Agata Byszewska-Lasinska (National Institute of Cultural Heritage, Poland)

One of the main challenges of archaeology is to meet social expectations and needs. According to L. Smith heritage is a cultural practice and a social process , in which through acts of reminiscence, we begin to understand and engage with the present. The key is to use the archaeological knowledge to create people’s relationship with heritage in the present. The way to do this is sharing and disseminating knowledge about archaeological heritage primarily by engaging various local community groups around the topic of heritage. Activities within the framework of community archaeology help people understand and respect archaeological heritage, which results into more effective protection of its resources. The benefits are mutual - involvement of the local community allows to build or strengthen existing intra-community ties, discover their cultural identity, strengthen the group through intergenerational activities, which is especially important nowadays. In my paper I would like to present how these theoretical assumptions are put into practice by implementing the project Triquetra - Toolbox for assessing and mitigating Climate Change risks and natural hazards threatening cultural heritage- we are conducting activities to disseminate knowledge about the archaeological site - the Bronze Age settlement in Smuszewo (Poland) among local residents and authorities, schools and organizations. I’d like to present the activities undertaken over the past two years to build interest in archaeology from the ground up, to convey knowledge to the local community about the site, its importance and value, about the relationship between climate change, human activities and the preservation of heritage. The purpose of our activities is to make people aware that the actions taken to counteract the harmful effects of climate change and protect archaeological heritage are actions to strengthen the integrity of the community.

**2404. EXPLORING HISTORY TOGETHER: USING MUSEUM ARCHAEOLOGY TO CONNECT GENERATIONS AND FOSTER CULTURAL ENGAGEMENT**

**Contribution format:** Oral  
**Contribution authors:** Kristina Birkelund (The Museum of Cultural History, University of Oslo)

This project aims to engage children (around age 10 and teens) and their parents through archaeology, promoting understanding and tolerance through interactive museum experiences. By facilitating direct interaction with archaeological artifacts, we aim to enrich their understanding of culture and history through various engaging methods. The program includes workshops, observations, and interactive activities that enable children and families to learn, discuss, and create using the museum’s collections. One activity involves writing “historical journals,” where children can record their observations, thoughts, and drawings about the artifacts they encounter. This allows them to reflect emotionally and consider potential historical scenarios associated with the artifacts. A key component of our activities is historical reconstruction assignments, where children use fragments of artifacts to determine their original form and recreate small scenes from past lives. Imagining and playing out these scenarios helps children better visualize how people lived. Another activity involves children and families developing interview questions for the artifacts, imagining what stories the objects might tell if they could speak. Planned artifact-making workshops provide opportunities for children to create simple objects. A thematic museum quest encourages children to explore and interpret artifacts from different historical periods, fostering critical thinking and discovery. Collaboration on mini-projects allows children to work collectively, sometimes with parental involvement, to deepen their understanding of historical contexts and societal values. I expect that these activities will help children develop a deeper appreciation for history and life, while learning important values like tolerance and teamwork. This project demonstrates how archaeology can serve as a bridge across generations and cultures, fostering connections and mutual understanding. Through these creative and interactive methods, I aim to cultivate lifelong curiosity and respect for cultural heritage in all participants.



1079. WELLBEING AND DISPLACED COMMUNITIES IN GREECE: THE VALUE OF HERITAGE INTERVENTIONS

Contribution format: Oral  
Contribution authors: Francesca Ruzzetta (University College London)

Heritage has a still understudied potential to bring out connections among people, objects, spaces, and knowl-edges. I argue that these connections, facilitated by heritage interventions, can improve health outcomes for displaced people (asylum seekers and refugees). I frame ‘heritage interventions’ as a form of psychosocial inter-vention, i.e. ‘any program that incorporates techniques that aim to reduce psychosocial distress by reducing anxiety and depression and increasing social activities’ (Bessell and Moss, 2007). My research embeds itself in a growing body of scholarship that suggests that participating in artistic and heritage-based activities has positive health outcomes. Heeding Professor Burgess’ call to expand the ‘evidence base to highlight the mental health benefits of participation in community-led interventions where the focus may be on topics than mental health’ (2020, 119), I organised focus groups where, together with my displaced participants, I co-designed heritage-fo-cused interventions (visits to archaeological sites, museums, and other heritage-based activities). During these activities, we were joined by selected local community members. Assessing the impact of heritage-based activ-ities on displaced people’s wellbeing is challenging—as is the case with any non-clinical health intervention. To address these challenges, aided by cultural mediators, I followed a participatory research approach, and I deployed mixed evaluation methods. The inherent transdisciplinarity of my research—social geography, mobility studies, critical heritage, and the latest research on psychosocial interventions—provides refined tools to understand the efficacy of heritage-based interventions. I view heritage interventions as a form of welfare; whilst not combat-ing all the root causes of displaced people’s marginalisation (structural racism, disparity of access to resources and opportunities, linguistic barriers), they help weave a local community’s social fabric, thus building support networks, crucial to displaced people’s survival. In this contribution, I will present the preliminary results of my research with displaced people in Thessaloniki, one case study of my doctoral research.

2439. ACHIEVING LASTING BENEFITS: TACKLING CHALLENGES IN ARCHAEOLOGY-BASED WELLBE-ING INTERVENTIONS

Contribution format: Oral  
Contribution authors: Francesco Ripanti (University of Birmingham)

Archaeological engagement through site visits and landscape exploration offers documented benefits for physical and mental wellbeing, from improved physical health to enhanced cognitive function. The potential of archaeology as a social service for vulnerable groups has been demonstrated through initiatives like ‘ArcheologicaMente’ and ‘ΑρχαιοΛογικά’, implemented in Italy and Cyprus as part of the ‘Linking Community Archaeology and Wellbeing in the Mediterranean’ (LOGGIA) research project. These programs, which engaged mental health unit users and the Huntington’s community, employed participatory approaches to measure archaeology’s impact on commu-nity wellbeing. While quantitative and qualitative data analysis revealed significant positive outcomes, it also highlighted the need for sustained engagement to achieve lasting benefits. Through a comparative review of LOGGIA’s findings and of similar European initiatives, this paper identifies key structural, institutional, and practical barriers that limit the benefits of archaeology-based wellbeing interventions. The ultimate goal of this contribution is to offer recommendations for overcoming these obstacles, contributing to the growing discourse on archaeology’s role in health and wellbeing.

1993. PREHISTORIC ARCHAEOLOGY IN SPANISH EDUCATION: ANALYSING GAPS BETWEEN RESEARCH AND SCHOOL CURRICULA

Contribution format: Oral  
Contribution authors: Andrea García-Basanta (Departamento de Prehistoria y Arqueología, Universidad Autónoma de Madrid) – Juan Ignacio Morales (Institut Català de Paleoecologia Humana i Evolució Social (IPHES-CERCA) | Departament d’Història i Història de l’Art, Universitat Rovira i Virgili) – Francesca Romagnoli (Departamento de Prehistoria y Arqueología, Universidad Autónoma de Madrid)

The Spanish educational system presents the contents of the subjects that set the curricula in the different cycles of basic education (6-18 years). Prehistory, understood as the historical period spanning from the origin of hominins in the Palaeolithic era to the Metal Ages, prior to Romanization, is a broad topic that is scattered across differ-ent subjects. However, the topics covered in school on prehistory are limited, and the content is often outdated and descriptive, excluding a social lecture of archaeological data. There is a “gap” between scientific research and education which leads to a delay in the implementation of contents and major issues that can contribute to the actual debates in our society (migrations, climatic change, social care, etc.). This is causing misinformation, a marginal role of humanities in scientific debates and its social perception, and hindering the expected social impact of archaeological research. Our current project is aimed at understanding the social impact that Palaeolithic

research has on the education in Spain analysing the contents of prehistory in schools and the possible biases between them and the updated archaeological knowledge. The first step includes (i) the analysis of which themes are considered founding of prehistory in the educational curricula; (ii) the providing knowledge about these subjects in school books; and (iii) the biases that prevent on one side the upgrading of contents and on the other the inclusion of themes and perspectives that could improve the social impact of prehistoric research in current social challenges. In this paper we present some examples, and we discuss the impact of the detected delay in the inclusion of scientific research in schools, how it limits the relevance of humanities, including archaeology, and perspectives in this project to develop a systematic quantitative method to measure the impact of archaeo-logical research and heritage.

1636. THE ARCHAEOLOGY OF ANTHROPOCENE MATERIAL CULTURE IN ANTARCTICA: ENVIRONMENTAL IMPACTS AND PUBLIC BENEFITS

Contribution format: Oral  
Contribution authors: Jesús Fernández Fernández – Jesús Ruiz Fernández – Paloma Sánchez Broch – Mirella Ochoa Álvarez (Universidad de Oviedo)

Pollution is a global issue significantly affecting marine and terrestrial ecosystems, including remote regions. In recent decades, archaeology has developed a research avenue examining these pollutants as material culture of the Anthropocene, enabling analysis of their origin, impact, and cultural significance. This study aligns with this perspective, focusing on seaborne debris accumulation and distribution on Byers Peninsula, Antarctica. The project aims: (1) to archaeologically analyze drift matter on Antarctic beaches and (2) to raise awareness about the link between daily human activities and environmental degradation in these ecosystems. Firstly, during the 2025 field campaign, archaeological surveys were conducted on Byers Peninsula using transects, geolocation, and drone-based photogrammetry. The collected drift matter has been analyzed in the laboratory to determine its age, origin, material composition, and ecological impact. Preliminary results identify patterns of drift matter accu-mulation and distribution in the study area, indicating the materials originate from various sources. Variations in drift matter density and composition have been documented in relation to environmental factors and oceanic dynamics. These findings provide an initial understanding of drift matter as chronological markers and their role in transforming the Antarctic landscape. The discoveries confirm the increasing presence of waste in pristine areas like Byers Peninsula, highlighting the need for global strategies to mitigate its impact. Secondly, various types of exhibitions, both physical and virtual, are being developed alongside the project to disseminate results and raise awareness. Furthermore, an innovative system to assess public impact using artificial intelligence is being implemented, opening new avenues in public science and climate change communication. Collectively, this underscores archaeology’s potential not only as a discipline studying the past (including the most recent) but also as a science engaged with current challenges, generating public benefits through knowledge, awareness, and action to address today’s environmental issues.

341. EXCAVATING THE PAST, SHAPING THE FUTURE: SUCCEEDING AS AN ARCHAEOLOGIST IN A CHALLENGING JOB MARKET

Contribution format: Poster  
Contribution authors: Ivana Mirkovic (IMT School for Advanced Studies)

Being an archaeologist often conjures images of excavations and the romanticised adventures of Indiana Jones. The reality, however, is far more complex. It demands long-term dedication, adaptability, and networking to build a strong foundation for systematic research and critical thinking. Even after years of such work, archae-ologists face no guarantee of stable employment. This poster explores how combining archaeological expertise with other fields can open up new and sustainable career paths. Based on my experience across six countries and nine universities, I share examples of interdisciplinary engagement, including the European Forum Alpbach in Austria and the Western Balkans Youth Partnership. These experiences show that archaeologists can success-fully contribute to other social sciences and activism, expanding job opportunities without leaving archaeology. To provide a clearer picture of where archaeologists are employed across Europe and the UK, the DISCO proj-ect results are used in a table illustrating the percentage distribution of employment across different sectors. In conclusion, the poster emphasizes the need for an interdisciplinary approach to archaeology – both within universities and among archaeologists themselves in countries where employment opportunities are scarce – as the only sustainable way to overcome challenges of the job market in the field.s



156 BEYOND THE ALPS: NEW FRONTIERS IN SOUTH EUROPEAN WETLAND ARCHAEOLOGY

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Regular session  
**Session keywords:** Wetland Archaeology, Southern Europe, social dynamics, high precision chronology, environmental resilience  
**Session organisers:** Mirco Brunner (University of Bern) – Giulia Di Giamberardino (Sapienza University of Rome) – Martin Hinz (University of Bern) – Marcello De Vos (University of Groningen) – Raquel Piqué Huerta (UAB Barcelona) – Adrian Anastasi (Institute of Archaeology, Academy of Sciences of Albania)

SESSION ABSTRACT

Archaeological research across Southern Europe and the Mediterranean is uncovering a wealth of waterlogged archaeological sites, offering insights into prehistoric lifeways, environmental and social dynamics over millennia. We invite papers that examine these new and established sites as essential archives, complementing the well-studied UNESCO-listed lake-dwelling sites north of the Alps. These northern sites have shaped narratives of prehistoric settlement and resource management; however, the sites south of the Alps are expanding our understanding of prehistory’s richness and diversity. This session welcomes contributions bringing fresh perspectives to wetland archaeology south of the alps through innovative methods, including bioarchaeological, paleoenvironmental, and material culture analyses. With their extraordinary preservation, wetland sites offer an unmatched glimpse into the full spectrum of material remains from past lifeways — revealing insights that dryland sites can rarely, if ever, provide. Studies using bioarchaeological analyses might provide critical insights into ancient diets, subsistence strategies, and responses to climatic shifts. Furthermore, we invite research that examines the role of wetlands in social practices and settlement processes, including evidence of early agricultural practices and settlement patterns that predate and complement the northern Alpine findings, as well as studies revealing how wetland landscapes supported forms of human interaction highlighting the social importance of these environments. This session encourages contributions with high-precision dating method helping to contextualize environmental and human factors. They reveal how communities adapted to environmental shifts with innovative responses. We aim to position southern wetland sites as dynamic complements to their northern counterparts, highlighting the diversity of prehistoric resilience strategies and their potential to illuminate cultural transitions, population movements, and adaptive responses. This session aims to foster dialogue on the significance of South European wetlands, prompting discussions on cross-regional comparisons, conservation, and the integrated protection of wetland landscapes as essential elements of Europe’s cultural heritage.

CONTRIBUTION ABSTRACTS

1799. EXPLORING PREHISTORIC SETTLEMENTS IN THE LACUSTRINE ENVIRONMENT OF LAKE BANYOLES (SPAIN)

**Contribution format:** Oral  
**Contribution authors:** Raquel Piqué (Universitat Autònoma de Barcelona) – Jord. Revelles (Institut Català de Paleoecologia Humana i Evolució Socials | Universitat Rovira i Virgili) – Rut Geli Mauri – Guillem Mauri Galí – Joan Mayoral Peñalva (Centre d’Arqueologia Subaquàtica de Catalunya) – Xavier Terradas Batlle (Consejo Superior de Investigacioens Científicas) – Carlos Sánchez García (Universidad Autónoma de Madrid) – Antoni Palomo Pérez (Universitat Autònoma de Barcelona)

The lacustrine environment of Lake Banyoles (Spain) has played a crucial role in shaping our understanding of Neolithic occupations in the North-east of Iberian Peninsula. Extensive archaeological investigations at the site of La Draga have provided exceptional evidence of early farming communities (ca. 5300-4700 cal BC), thanks to the remarkable preservation of organic materials in this lakeside settlement. Recent systematic terrestrial and underwater surveys, core drillings, stratigraphic analyses, and fortuitous discoveries across the lake’s surroundings have yielded new data, offering a broader perspective on human activity beyond La Draga. These research efforts, supported by multiple radiocarbon dates from different areas around the lake, provide valuable insights into the dynamics of human settlement and landscape use over time. By integrating these diverse lines of evidence, this study deepens our understanding of prehistoric occupation patterns in the Lake Banyoles area and contributes to broader discussions on human-environment interactions in lacustrine settings in the Mediterranean region.

1311. WHAT REMAINS? THE CURRENT STATE OF LAKE ALBANO AND THE VILLAGGIO DELLE MACINE THROUGH PAST INVESTIGATIONS AND NEW ANALYSES

**Contribution format:** Oral  
**Contribution authors:** Giulia Di Giamberardino – Andrea Conte (Sapienza - Università di Roma)

The Villaggio delle Macine, located on the shores of Lake Albano, about 25 km southeast of Rome, is a wetland settlement dating back to the period between the Early and Middle Bronze Age. It is considered one of the most imposing pile-dwelling villages in Central Italy. Discovered by chance in 1984 by divers Angelo Capri and Riccardo Bellucci of the Gruppo Latino Ricerca Subacquea (G.L.R.S.), the site was subsequently investigated through a series of underwater surveys authorized by the Superintendence. Over the following decade, research led to the identification of archaeological materials and evidence of prehistoric occupation in various areas of Lake Albano, many of which remain understudied. In 2001, a drastic drop in the lake’s water level allowed for the first dryland excavations, led by Micaela Angle, at the Villaggio delle Macine site. However, the current state of the previously identified areas remains uncertain due to the progressive deterioration of the archaeological record. Recently, the study of artifacts stored at the Museo Civico di Albano has allowed for a new chronological hypothesis for one of the identified occupation areas, while also highlighting the site’s vulnerability to weather conditions, recreational activities, and illegal excavations.The use of advanced analytical technologies, such as spatial analysis, in contexts where new investigations cannot currently be carried out — or, as in the present case, in sites discovered under different preservation conditions and lacking adequate documentation — offers the opportunity to extract new information from materials that have so far remained uninterpretable. Such approaches make it possible, for instance, to estimate the degree of stratigraphic erosion or to identify the possible functions and chronological phases of specific areas. This study proposes a critical reassessment of data and finds from past surveys, which, if suitably reanalysed, can contribute to a comprehensive re-evaluation of the known archaeological framework.

2407. ALMOST SOUTH OF THE ALPS: THE PILE-DWELLING SITE ON KAPUZINERINSEL, LAKE WÖRTHERSEE – A KEY DISCOVERY IN AUSTRIA’S ALPE-ADRIA REGION

**Contribution format:** Oral  
**Contribution authors:** Marie-Claire Ries (University Innsbruck) – Andrea Seim (University Freiburg)

The inner-alpine basin of Klagenfurt is located along the fluvial axis of the southeastward-flowing Drava River in the southernmost reaches of the Austrian Alps. It contains numerous large lakes with substantial potential for modern transdisciplinary research. However, key periods, such as the emergence of sedentary life and the early phases of metallurgical resource exploitation at the onset of the Copper Age, remain largely underexplored to this day, positioning Carinthia on the periphery of contemporary archaeological discourse. Recent underwater archaeological surveys at Lake Wörthersee led to the discovery of a previously unknown pile-dwelling site on Kapuzinerinsel, an island in the center of the lake, featuring multiphased, waterlogged remains linked to the Kanzianiberg-Lasinja culture and groups with furrowed-incised pottery from the 4th millennium BC. Underwater excavations in autumn 2024 provided an initial in-depth insight into the site’s features. The systematic documentation and sampling of over 100 well-preserved wooden piles across a 21 m² area now form the basis for the first high-resolution dendrochronological analyses, contributing to precise dating and contextualization of the site. These structures represent some of the oldest known wooden architectural remains in Austria, raising key questions regarding their function—mobility, representation, and/or fortification—due to the site’s unique insular location. This pilot study addresses significant gaps in Austrian prehistoric research by providing critical new data on settlement history. The findings have far-reaching implications for understanding local chronological developments, societal dynamics, architectural innovations, and human-environment interactions. Furthermore, the study advocates for a broader integration of Austria’s Alpe-Adria lakescapes as a key region bridging the gap between Southeastern Europe (the Balkans) and the well-studied lake-dwelling sites north of the Alps.

313. ARCHAEOLOGICAL WOOD FROM ŠPICA PILE-DWELLING SITE, SLOVENIA

**Contribution format:** Oral  
**Contribution authors:** Mojca Jančar (Terarhis) – Katarina Čufar – Maks Merela (Biotechnical Faculty, Department for Wood Science and Technology, University of Ljubljana) – Anton Velušček – Elena Leghissa (ZRC SAZU, Institute of Archaeology, Ljubljana)

In 2009 and 2010, the rescue archaeological excavations at the Špica prehistoric pile-dwelling settlement in Ljubljana, situated on the northern part of Ljubljansko barje, Slovenia, unearthed remains of wooden architecture. Approximately half of the wooden piles were well preserved, while the other half were already very decayed due to the environmental impacts. Numerous finds from the Late Copper Age, i.e. most likely from the middle of the 3rd millennium BC were found. Among the finds are numerous pottery vessels and other objects, closely resembling finds attributed to the Ljubljana culture, known from contemporary pile-dwellings on the Ljubljansko barje.The wooden remains underwent various analyses, including wood identification, dendrochronology, wood



processing techniques and spatial distribution studies of the piles. The dendrochronological analysis established felling dates for the wood between 2522 and 2406 BCE. Due to the time span of the available reference chronologies, it was not possible to date the wood eventually felled before or after 2659 – 2366 BCE. It is very likely that the wooden structures were constantly repaired and reconstructed and that the Špica dwelling probably existed for longer than the dating span suggests, i.e. probably also after 2366 BC. The integration of wood analyses with ongoing archaeological artefact studies and multi-proxy paleo-ecological research has improved our understanding of the chronological framework of the Špica site.

1997. LIN 3 IN TRANSITION: EXTENDING OUR VIEW OF THE LONG NEOLITHIC HORIZON ON LAKE OHRID

**Contribution format:** Oral  
**Contribution authors:** Martin Hinz (Institute of Archaeological Sciences, University of Bern | Oeschger Centre for Climate Change Research (OCCR), University of Bern) – Adrian Anastasi (Institute of Archaeology, Academy of Sciences of Albania, Tirana, Albania) – Mirco Brunner (Institute of Archaeological Sciences, University of Bern | Oeschger Centre for Climate Change Research (OCCR), University of Bern) – Krist Anastasi (Institute of Archaeology, Academy of Sciences of Albania, Tirana, Albania | Laboratoire de Recherche HiSoMA, Université Lumière Lyon 2) – Maxim Yermokhin – Andrej Maczkowski (Institute of Archaeological Sciences, University of Bern) – Ilirian Gjipali – Rudenc Ruka (Institute of Archaeology, Academy of Sciences of Albania, Tirana, Albania) – Sönk. Szidat (Department of Chemistry, Biochemistry and Pharmacy, University of Bern | Oeschger Centre for Climate Change Research (OCCR), University of Bern) – Albert Hafner (Institute of Archaeological Sciences, University of Bern | Oeschger Centre for Climate Change Research (OCCR), University of Bern)

Recent excavations at Lin 3, a lakeshore settlement on Lake Ohrid’s Albanian shore, continue to refine our understanding of early Neolithic communities in the southwestern Balkans. Previous work under the EXPLO project established the site’s stratigraphy, material culture, and its role in the transition from the Early to Middle Neolithic. However, questions regarding its structural development and chronology remain, which the 2025 campaign aims to address. Building on the 2023–2024 seasons, the latest investigations focus on two objectives. First, a new trench will connect previously excavated on-land areas, enhancing the spatial and stratigraphic framework. Second, underwater excavations are expanding toward the shore to examine the relationship between the settlement and its extensive palisade complexes (ca. 4400–4000 BCE). This integration of terrestrial and submerged contexts aims to clarify domestic architecture associated with these palisades and explore whether similar structures existed in the earlier settlement horizon (ca. 5800–5700 BCE). On-land excavations previously identified two main settlement phases, tentatively dated to ca. 5800 and 5700 BCE via dendrochronological wiggle matching. The 2025 campaign seeks to refine these dates and clarify occupation sequences. A key focus is the distribution of Impressed Ware, present in lower layers but absent in upper ones. If confirmed, Lin 3 may offer the first precise dating of this ceramic tradition’s decline within a 100-year margin—crucial for Neolithic typochronology in Albania and beyond. Beyond ceramics, new excavations are expected to yield further evidence of wooden architecture, lithic and ornamental finds, and potentially human remains. By synthesizing stratigraphic, artefactual, and dendro-chronological data, this research enhances our understanding of how early farming communities in the region organized domestic life, adapted to environmental changes, and navigated cultural transformations.

1719. LAKE MALIQ REVISITED: FRESH PERSPECTIVES ON NEOLITHIC SUBMERGED SETTLEMENTS AT FORMER LAKE MALIQ, ALBANIA

**Contribution format:** Oral  
**Contribution authors:** Mirco Brunner (Institute of Archaeological Sciences, University of Bern | Oeschger Centre for Climate Change Research (OCCR), University of Bern) – Adrian Anastasi (Albanian Institute of Archaeology, Department of Prehistory, Academy of Sciences of Albania) – Anastasi Krist (Laboratoire de Recherche HiSoMA - Histoire et Sources des Mondes Antiques, Université Lumière Lyon 2) – Andrej Maczkowski (Institute of Archaeological Sciences, University of Bern | Oeschger Centre for Climate Change Research (OCCR), University of Bern) – Matthias Bolliger (Archaeological Service Canton of Bern) – Martin Hinz (Institute of Archaeological Sciences, University of Bern | Oeschger Centre for Climate Change Research (OCCR), University of Bern) – Sönke Szidat (Department of Chemistry, Biochemistry and Pharmacy, University of Bern | Oeschger Centre for Climate Change Research (OCCR), University of Bern) – Ilir Gjipali (Albanian Institute of Archaeology, Department of Prehistory, Academy of Sciences of Albania) – Albert

Hafner (Institute of Archaeological Sciences, University of Bern | Oeschger Centre for Climate Change Research (OCCR), University of Bern)

As part of the ERC-EXPLO project, settlement horizons at Lakes Ohrid, Prespa, and Kastoria have been precisely dated using dendrochronology and radiocarbon methods. The exceptional preservation of these waterlogged lakeside sites provides insights comparable to UNESCO World Heritage sites in the Alpine region. This study presents the first absolute dating of settlement phases from submerged prehistoric sites on the former Lake Maliq, located in Albania’s Korçë Plateau. Excavations at Dunavec, Maliq, and Sovjan reveal well-preserved waterlogged cultural layers and wood from prehistoric structures, highlighting their archaeological significance. Until now, these sites lacked precise absolute dates. Through the ERC-EXPLO project, we have addressed this gap by generating the first absolute dates for these settlements using dendrochronology and radiocarbon methods. This paper focuses primarily on the sites of Dunavec, Maliq, and Sovjan, situating them within the broader context of sites dated thus far in the framework of the project. The main focus of our paper is on the Dunavec site. Over 50 years after the first excavations an Albanian-Swiss team revisits the waterlogged Neolithic site of Dunavec, a crucial site in eastern Albania’s Korça Basin. The new excavations shed new light on the stratigraphic complexities already indicated by previous studies. Exceptional organic preservation was observed approximately 8.5 meters below the surface, allowing the documentation of ceramics, lithic artifacts, and wooden architectural elements. First dendrochronological and radiocarbon dating pinpoint the construction of these structures to the beginning of the 53rd century BC, with a modelled end-date range between 5287 – 5272 cal BC (95.4 %).

154. REINTERPRETATION OF BRONZE AGE UNDERWATER SITE “PRESPA 1”: A MULTIDISCIPLINARY APPROACH BASED ON ARCHAEOLOGICAL DATA, ABSOLUTE CHRONOLOGY, AND ENVIRONMENTAL CHANGES

**Contribution format:** Oral  
**Contribution authors:** Adrian Anastasi (National Institute of Archaeology - Academy of Sciences of Albania) – Kristi Anastasi (Laboratory HiSoMA, University Lumière Lyon 2)

The Bronze Age underwater site in Great Lake Prespa represent a crucial yet understudied archaeological resource, providing valuable insights into past human-environment interactions. Initial surveys conducted in the early 2000s by the Institute of Archaeology in Tirana, and more extensive research undertaken after 2013 within the framework of the “Underwater Archaeological Map of the Albanian Coastline” project, led to the identification of the “Prespa 1” site. Originally hypothesized to belong to the pile-dwelling typology, similar to those discovered in the Maliq and Ohrid lakes, recent findings challenge this interpretation. Emerging evidence increasingly supports the hypothesis that this site was originally terrestrial and was subsequently submerged due to significant climatic and hydrological transformations. The reinterpretation of the site requires a multidisciplinary research approach that integrates archaeological data, absolute dating methods, and paleoenvironmental indicators to achieve a refined chronological and environmental framework. Through the application of innovative methodologies and detailed analyses, this study aims to provide a comprehensive understanding of site dynamics, adaptive strategies, and the broader socio-environmental context in which these communities operated. A thorough reassessment of the “Prespa 1” site will contribute to a deeper understanding of Bronze Age habitation patterns, human responses to environmental change, and inter-community interactions across the region. These results will improve our knowledge of prehistoric adaptation strategies and landscape transformation processes, offering new insights into the complex interaction between human activity and environmental dynamics in the Bronze Age Balkans.

1976. ELUSIVE ORE DEPOSITS IN ALTERED LANDSCAPES: IDENTIFYING POTENTIAL BOG IRON ORE DEPOSITS EXPLOITED IN THE PAST

**Contribution format:** Poster  
**Contribution authors:** Tena Karavidovic (Institute of Archaeology, Zagreb) – Tomislav Brenko (Faculty of Mining, Geology and Petroleum Engineering, University of Zagreb) – Tajana Sekelj Ivančan (Institute of Archaeology, Zagreb) – Sibila Borojević Šoštarić (Faculty of Mining, Geology and Petroleum Engineering, University of Zagreb)

Bog iron ores were utilized for iron production from prehistoric times until the early modern period across Europe. In the southern Carpathian Basin, specifically in the alluvial plain of the Drava River in northern Croatia, there are over 150 archaeological sites with surface evidence of iron production activities. Some sites have been excavated, and provenance studies indicate that iron was produced from local bog iron ore during Late Antiquity and the Early Middle Ages. Bog ores are renewable resources; they are sedimentary deposits that form in lowland wetland environments. A suitable environment for the formation of these ores includes gley soils associated with alluvial sands, characterized by variable redox potentials and a constant flow of groundwater near the surface, which is saturated with iron (Fe2+) ions. Analyzing the properties and deposits of these ores can enhance our



understanding of the natural mechanisms that influenced resource management and utilization in the past, as well as the technological adaptations related to available resources. However, in-depth research into historical bog iron ore deposits is challenging due to factors such as complete exploitation, degradation, and limited regeneration or development. These challenges are primarily caused by land reclamation efforts and their subsequent impact on the environment. This research examines the potential for the development of bog iron ore deposits, their formation mechanisms, and predicts the spatial distribution of geological formations. This is based on several geoarchaeological case studies conducted in the lowland areas of the Sava and Drava River Valleys. Data on the potential occurrence of these deposits is compared with archaeological records of iron production sites to better understand the dynamics of landscape use, resource availability, and exploitation.

157 FISHING TECHNIQUES IN RIVER AND FRESHWATER ENVIRONMENTS OF NORTHERN EUROPE

Session theme: 5. Finding the way! Archaeological sciences and opening new research perspectives  
Session format: Discussion session  
Session keywords: Fish traps and netting, Prehistoric and historical fishing practices, Traditional fishing techniques, Northern Europe  
Session organisers: Christopher Fredrik Kvæstad (Stavanger maritime museum) – Satu Mirjami Koivisto (Museum Lolland - Falster)

SESSION ABSTRACT

This session will delve into traditional and historical fishing techniques specific to the freshwater and riverine environments of Northern Europe, using archaeological evidence and ethnographic records to illustrate these practices. We invite papers that examine diverse methods of fish trapping, netting, and line fishing, exploring how these techniques reflect technological advancements, dietary practices, and cultural values across various regions. Emphasis will be placed on identifying regional and chronological variations, dating techniques, and embedding these practices within broader subsistence strategies and environmental adaptations. Our goal is to foster a comprehensive understanding of fishing’s historical importance, particularly how techniques evolved to adapt to the unique freshwater ecosystems across Northern Europe. Additionally, this session will consider how fishing practices shaped local economies, reinforced cultural identities, and promoted sustainable resource use. Interdisciplinary contributions that integrate perspectives from archaeology, anthropology, and environmental science are encouraged to enrich this exploration and expand our understanding of Northern European freshwater fishing traditions.

CONTRIBUTION ABSTRACTS

263. DEEP ROOTS OF LAKE FISHING IN THE NORTH: STONE AGE FRESHWATER FISHING TECHNIQUES AND THE USE OF ORGANIC RAW MATERIALS

Contribution format: Oral  
Contribution authors: Satu Koivisto (Museum Lolland-Falster | University of Turku/Archaeology) – Jenni Suomela (University of Helsinki/Craft studies) – Mia Lempiäinen-Avci (University of Turku/Biodiversity Unit)

Waterlogged archaeological sites in Northern Europe provide unique insights into prehistoric fishing techniques and material culture, especially with regard to equipment made of organic materials that rarely survive in dryland contexts. Here, we explore freshwater fishing methods using nets and traps in Stone Age contexts in Boreal Fennoscandia, focusing on the use of locally available organic raw materials, such as tree bast, wood and bark, in their manufacture. The rare preservation of organic materials at waterlogged sites allows a detailed analysis of the crafting and construction of fishing gear and their uses. Our findings from the lake site of Järvensuo 1 in southwest Finland (c. 6000–2000 cal BCE) from the Mesolithic and Neolithic demonstrate the multiple uses of tree bast fibres from species such as lime and willow, which were crafted into cords and nets. Wooden fish traps made of flexible pine laths and supporting wooden elements demonstrate deep knowledge of aquatic environments and fish behaviour. Ethnographic parallels help us to reconstruct these fishing techniques and assess their efficiency in past subsistence economies. By examining organic fishing gear in the broader ecological and cultural context of Northern Europe, our study advances the understanding of past subsistence practices and resource exploitation in lacustrine environments. Our findings also contribute to wider discussions of technological adaptations to northern environments, the sustainability of prehistoric fishing practices, and the role of organic materials in early fishing traditions and material culture.

27. MORE THAN FISH: ON THE SOCIAL LIFE OF A CHALCOLITHIC FISHING TOOL

Contribution format: Oral  
Contribution authors: Svein Nielsen (Stavanger maritime museum)

Long-distance distribution of exotic goods in prehistory are often approached in archaeology as evidence of trade, however the occurrence of practical implements across past cultural borders begs the question: Was trade conducted exclusively by ‘travelers’ or ‘traders’, or could contact and exchange of ideas and objects across cultural borders also be engaged through other social identities? This paper focuses on a specific freshwater fishing tool – the osseous toggling harpoon – and its distributions in Europe during the 5th and 4th millennium BCE. From its origin in the lower Danube region (late Vinča Culture, 4850-4500 BCE), the toggling harpoon and its associated technological armateur, developed for riverine fisheries, spread within a wide cultural region (Gumelnița, Cucuteni-Trypillia, Sredny Stog), before arriving in south-central Europe, Scandinavia and the eastern Baltic during the time of the Funnel Beaker Culture (4100-2800 BCE). What social mechanisms allowed the wide distribution of fishing technologies in the Chalcolithic? Which factors structured the ‘biased’ distribution of the toggling harpoon technology? This paper explores these questions by comparing its distribution to contemporary and associated evidence of long-distance trade, and by analyzing aspects of the ‘design grammar’ of toggling harpoons within this wide area.

1019. FISHING HISTORY IN LAKE ERTENIS, NORTHWESTERN LITHUANIA

Contribution format: Oral  
Contribution authors: Tomas Rimkus (Vilnius Academy of Arts | Klaipėda University) – Giedrė Piličiauskienė (Vilnius University) – Kęstutis Peseckas (Lithuanian Institute of History)

Lake Ertenis is one of the many areas in western Lithuania that have been completely drained and turned into wetlands for agricultural purposes. The first archaeological finds discovered here were found during the draining of the lake’s basin and the straightening of one of its outlets. Newly discovered sites have shown good preservation of Stone Age organic artefacts, which therefore led to several archaeological excavations in the 20th century. They have uncovered osseous, flint and pottery artefacts and animal remains dating to the hunter-fisher-gatherers and the first husbandry societies. Wooden structures, various types of net weights and fish remains have been found, indicating that fishing took place here. In 2023 and 2024, archaeological investigations in the surroundings of the former Lake Ertenis were resumed. Investigations at several selected sites have added to the data on fish consumption and fishing techniques from the end of the Mesolithic to the Bronze Age. In addition, the laboratory research has re-evaluated artefacts and structures found in the 20th century that are potentially related to fishing in the lake. In this paper we report comprehensive data on the fishing activities in Lake Ertenis from the Stone Age to the end of the Bronze Age. The types of artefacts, the analysis of the wooden structures and the zooarchaeological data are presented.

1875. STONE-BUILT FISHING WEIRS IN SULDALSLÅGEN, SOUTHWEST NORWAY

Contribution format: Oral  
Contribution authors: Christopher Fredrik Kvæstad (Stavanger maritime museum)

This paper explores the long history of salmon (*Salmo salar*) fishing in Suldalslågen, Southwest Norway, focusing on how historical records provide insights into prehistoric fishing practices. The earliest documented evidence of salmon fishing dates back to 1592, referencing the use of lyster (fish spears), while later sources describe the widespread use of stone-built weirs (sløer) to trap salmon during their migrations. However, archaeological findings and environmental reconstructions suggest that similar techniques may have been in use long before written records, forming part of a continuous fishing tradition in Northern Europe. By examining medieval statutes, tax records, and ethnographic sources alongside archaeological evidence, this study investigates how fishing technologies evolved in response to environmental and social factors. The ownership and regulation of salmon fisheries, documented from the 17th century, reflect the increasing economic and political significance of these resources. In 1739, local authorities attempted to downplay the extent of salmon fishing to avoid taxation, despite external reports confirming its large-scale nature. Such conflicts hint at long-standing traditions of managing and exploiting riverine fisheries, potentially rooted in prehistoric practices. Through an interdisciplinary approach combining archaeology, historical sources, and environmental analysis, this paper situates Suldalslågen’s salmon fisheries within broader Northern European freshwater fishing traditions. By using historical records as a lens to explore prehistoric fishing strategies, the study highlights the enduring nature of riverine subsistence practices and their role in shaping local economies, cultural identities, and sustainable resource use across millennia.



158 UTILITARIAN CERAMICS IN THE MEDITERRANEAN DURING THE FIRST MILLENNIUM BCE. SIMPLE, FUNCTIONAL, AND OFTEN OVERLOOKED

Session theme: 1. On artefacts and beyond  
Session format: Regular session  
Session keywords: Mediterranean ceramics, Mediterranean archaeology, cooking pots, utilitarian ware, ceramic production, food preparation and consumption  
Session organisers: Vicky Vlachou (Aristotle University of Thessaloniki) – Isabelle Algrain (Université libre de Bruxelles)

SESSION ABSTRACT

This session aims to shed light on the often overlooked yet central role of utilitarian ceramics in the Mediterranean region during the first millennium BCE. Plain and cooking ware represent a common find in most archaeological contexts, providing insight on regional production and consumption habits. The variety of their shapes, sizes and fabrics is consistent to the multiple roles they were assigned throughout antiquity. While much attention has been given to finely decorated pottery, plain ware, cooking and storage pots actually constitute large ceramic assemblages found on most archaeological sites. The session invites papers that explore the production, distribution, and use of these functional ceramics in domestic, funerary, and religious contexts. Contributions may examine issues such as material sourcing, manufacturing techniques, trade, and exchange networks—often underestimated due to the assumption that these ceramics did not travel or were not widely commercialized. Additionally, discussions on the social and cultural significance of these utilitarian objects, despite their often low aesthetic value, are welcome. Issues related to the development of specific shapes and their chronology, as well as associations between regional productions may greatly add to the discussion and better understanding of the production and use of utilitarian ceramics. Cross-craft approaches related to technological aspects, production spaces and/or consumption habits are equally relevant. By focusing on plain and functional pottery, this session seeks to highlight how these objects can provide insight into the socioeconomic structures, technological developments, intended choices and uses, as well as everyday experiences of ancient populations. It also aims to encourage new methodologies and approaches in studying utilitarian ceramics, promoting a holistic (where possible) understanding of the ceramic record beyond the more commonly studied decorated wares.

CONTRIBUTION ABSTRACTS

1643. SIMPLE AND OVERLOOKED, BUT UNAMBIGUOUS – COOKING WARES FROM THE LATE BRONZE AGE SETTLEMENT AT ADA TEPE IN EASTERN RHODOPES

Contribution format: Oral  
Contribution authors: Yana Dimitrova-Taseva (National Archaeological Institute with Museum at the Bulgarian Academy of Sciences) – Clare Burke (Department of Archaeology, University of York) – Elena Marinova (Laboratory for Archaeobotany, Baden-Württemberg State Office for Cultural Heritage)

The Late Bronze Age pottery from the goldmine and settlements at Ada Tepe near Krumovgrad in the Rhodope Mountains is one of the most comprehensive dated assemblages in modern day Bulgaria. The pottery has been thoroughly studied from typological and technological perspectives providing important insights into the daily lives of the community, with vessels for dining, storage and cooking. Importantly, sherds relating to some vessel types (e.g. baking pans) are not found in all of the excavated contexts in the settlement, which aids the interpretation of the features and the nature of the activities that were undertaken in different structures. This presentation will discuss the Hilltop pottery, focusing on cooking vessels. While the cooking jars are found in all excavated features in all Late Bronze Age phases, the flat baking trays appear in the Hilltop settlement complex from the 14th to 12th centuries. They are not found in any other pottery complex from the 2nd and 1st millennium BC in Rhodope Mountains, thus raising questions of their identification at sites. While the function of the vessels was primarily determined based on their size and shape, as well as an analysis of potential sooting patterns on cooking vessels, further palaeobotanical analysis was conducted on the site (i.e. the identified food-crust fragments speak of bread preparation on-site) to suggest that most of the identified cereal crops could have been used to prepare porridges or flatbread, pointing to the introduction of new baking techniques during the Late Bronze Age. To complement the typological and functional analyses, macroscopic analysis and thin section petrography has demonstrated that these vessels were produced locally, with a correlation between raw material clay paste recipes and vessel type that indicate some aspects of raw material choice were related to the size, type and intended function of the vessel.

894. WHAT DOES “THRACIAN” POTTERY LOOK LIKE? STUDIES OF THE EARLY IRON AGE CERAMIC ENSEMBLES FROM ANCIENT THRACE, BULGARIA

Contribution format: Oral  
Contribution authors: Julia Tzvetkova (Sofia University St. Kliment Ohridski) – Georgi Nekhrizov – Nadezhda Kecheva – Nataliya Ivanova – Veronika Gencheva – Iveta Kirilova (National Archaeological Institute with Museum, BAS)

The use of ethnonyms for defining ceramic ensembles has always carried risks in archaeology. This is the case of the term “Thracian pottery”, used mostly in old school historiography but still appearing in some recent studies as a synonym for the handmade pottery from the (Early) Iron Age Thrace. This has sometimes led to the incorrect assumption that the presence of handmade pottery – even only plain undecorated sherds – automatically indicates a Thracian ethnic presence across different periods in the region north of the Aegean. One major reason for this confusion is that all EIA pottery from Thrace is handmade. Despite Bernhard Hänsel’s important study in 1976, no modern comprehensive work has reassessed the topic, and few excavated sites provide detailed stratigraphic sequences. This lack of data makes it difficult to analyze pottery styles, chronological development, and regional specifics. The Gluhite Kamani rock-cut complex in the Eastern Rhodope Mountains offers a valuable opportunity to reassess EIA pottery. The site stratigraphy covers the transitional period from the late LBA and continues through the EIA. A current project (KII-06-H80/6-07.12.2023, BNSF-funded) focuses on processing this ceramic ensemble, aiming to create an online database with a standardized classification system for the EIA pottery from Thrace. The database covers Southeast Thrace, Bulgaria. So far, two main pottery groups can be distinguished: handmade fine ware (tableware) and coarse ware (plain ware, kitchenware). Fine ware features distinctive forms, decorative styles, and decoration techniques that disappeared after the 6th century BC, while coarse ware is not chronologically sensitive in terms of forms and decoration, some of which remain consistent over a broader time and geographic range. Therefore, if the term “Thracian pottery” is to be used, it should apply specifically to EIA fine ware from Thrace rather than being a broad, misleading label.

1136. MUNDANE CERAMICS: A CASE OF OVERLOOKED HANDMADE POTTERY FROM IRON AGE NORTH-EASTERN GREECE

Contribution format: Oral  
Contribution authors: Peli Plika – Manolis Manoledakis – Trisevgen. Papadakou – Eleni Mentessidou – Anastasia Basakyrrou (International Hellenic University)

The site of Trapeza Neo Rysio-Kardia is an Iron Age settlement (ca. 9th-6th c. BCE) on a flat-topped hill near Thessaloniki, northern Greece. The excavation by the International Hellenic University has revealed complex compounds of rooms following a regular plan, and a great number of finds, most notably large quantities of pottery. In this presentation we wish to focus on a certain type of handmade pottery, which exhibits typological and technological characteristics that diverge significantly from the rest of the assemblage, such as their consistent spherical form with a restricted mouth and strap handles. The distribution of sooting clouds and in some cases the carbonized remains of food in the interior indicate that at least many of them were primarily used as cooking vessels. Here, we would like to discuss the technological and typological characteristics, including an attempt to estimate the range of their sizes as a proxy for the size of the groups of people intended for. Moreover, we shall discuss their occasional incised decoration, which is unique to this particular type of pottery and exhibits a standardized and repetitive range of motifs. Lastly, we would like to outline the future prospects for analytical research that would help address the questions arising from this study. These rather overlooked vessels are presented as a cohesive group for the first time, highlighting the different pottery traditions operating simultaneously in terms of construction techniques, materials, and potential functional differentiation, and are placed within the wider context of the Iron Age in the region.

247. COOKING IN EARLY IRON AGE THASOS

Contribution format: Oral  
Contribution authors: Maguelone Bastide (École française d’Athènes)

Early Iron Age on Thasos island is a period wealthy of a great variety of influence, from North-West, North and North-East Aegean. How does this diversity reflect on the cooking practices? Few attention has been paid to the diversity of the EIA cooking wares of the region: tripod pots, handmade jars or basins rely each on specific craft knowledge and might be associated with different cooking practices. We will present the first results of our new study of the EIA ceramics from the settlement of Limenas, Thasos, tracking the cooking practices through morpho-stylistic and technological analysis of the sherds. Our study, which firstly aimed at reassessing the chronology of the settlement, led us to notice a significant heterogeneity of the cooking wares in use during the Protogeometric and Geometric periods on this site. This heterogeneity stands in sharp contrast to the homogeneity of the ware in use in the Parian colonial settlement created at the same place in the first half of the 7th c.



A detailed study of these wares could help us understanding the specificity of the precolonial settlement and the originality of its social organisation.

2209. COOKING IN CYCLADIC POTS: CERAMIC TRADITIONS AND TECHNOLOGICAL INNOVATIONS FROM THE EARLY IRON AGE TO THE LATE CLASSICAL PERIOD

Contribution format: Oral  
Contribution authors: Vicky Vlachou (Aristotle University of Thessaloniki)

Cycladic cooking pots have received only very little attention in scholarly research, and indeed only small assemblages have been studied and published from the Cyclades. Still in every case, a local production has been argued for cooking pots and devices, one linked to local pottery traditions while following technological innovations common within the wider Aegean region and a number of sites in the Western Mediterranean. Placing the focus on the cooking pots from the island on Tenos, the production and use of these containers shall serve as a proxy for detecting cooking and pottery traditions specific to the Cycladic islands. The progressive elaboration of cooking pots and devices in the Cyclades, allows us to approach small insular communities by considering the local productions, similarities and differences among the islands and equally shared (or not) habits and cooking practices. On the other hand, our discussion shall evolve around the assumed ritual use of these vessels, presumably involved in religious festivals and cultic performances within the context of the late Archaic and Classical cities. The published finds from an early sanctuary area and the new material from the late Archaic and Classical necropolis of Xobourgo on Tenos shall serve as a case study.

2117. COOKING FOR THE GODS: UTILITARIAN CERAMICS IN GREEK SANCTUARIES

Contribution format: Oral  
Contribution authors: Isabelle Algrain (Université libre de Bruxelles)

While figured pottery from Greek sanctuaries has been widely studied, utilitarian ceramics, particularly those used in the preparation and consumption of food, have received less attention, yet their study offers valuable insights into ritual practices in these sacred spaces. This paper will explore how utilitarian ceramics, particularly cooking and food-consumption vessels, can reveal significant aspects of food-related rituals in Greek sanctuaries. By examining the diverse types and uses of these ceramics, we can better understand their role in sacred spaces and religious practices. To explore these themes in greater depth, the paper will use the recent discoveries from the South Complex of the sanctuary of Despotiko (Cyclades) as a case study, where a large assemblage of locally produced ceramics has been uncovered. These vessels were used for food preparation, serving, and consumption, as well as cooking with shapes such as chytrae and lopades. While often regarded as ‘functional’ and less aesthetically significant than decorated pottery, these ceramics are fundamental to understanding culinary practices and social interactions within the sanctuary, particularly in relation to activities that may have occurred inside its hestiatorion, a space designed for communal meals.

1445. STORING IN THE CYCLADES: THE LATE GEOMETRIC AND ARCHAIC PITHOS IN ANDROS, TENOS AND MELOS

Contribution format: Oral  
Contribution authors: Myrto Kokkalia (University of Oxford)

Pithoi, although largely understudied, offer the potential to provide valuable information regarding regional storage practices, intra-site social dynamics, and wider economic networks. This project explores the role of storage pithoi in the Cyclades during the Late Geometric and Archaic periods (8th–5th centuries BC), focusing on decorated and plain pithoi from the islands of Andros, Tenos, and Melos. Through a macroscopic visual analysis of both published and unpublished material, the typology, technology, and decoration of storage jars are investigated. Manufacturing techniques, production localities, workshop specialisation, and distribution patterns are recorded, while ethnographic comparisons provide insights into traditional potting methods. Beyond their technological analysis, this study also examines the function and significance of pithoi in their diverse finding contexts, including domestic, public, industrial and cultic spaces. Their spatial organisation is plotted, alongside their capacity, size and quantity, offering insights into the economic and socio-political implications of storage, including surplus control, risk management strategies, wealth accumulation, and self-sufficiency.

1319. PRODUCTION AND CIRCULATION OF REDDISH COARSE WARE JARS IN EARLY IRON AGE ETRURIA: A CASE STUDY FROM DUNA FENIGLIA

Contribution format: Oral  
Contribution authors: Giulia Deimichei (Archaeometry Research Group, University of Tübingen) – Elena Marrocchino (Università degli studi di Ferrara, Dipartimento di Scienze dell’Ambiente

e della Prevenzione) – Efraim Andreidakis (Archaeometry Research Group, University of Tübingen) – Francesca Ciccarella (Università degli studi di Ferrara, Dipartimento di Studi Umanistici) – Baptiste Solard (Archaeometry Research Group, University of Tübingen) – Lionello Morandi (Archaeometry Research Group, University of Tübingen | Department of Civilisations and Forms of Knowledge, University of Pisa) – Massimo Cardosa (Museo diffuso della Comunità Mancianese (Manciano, GR) | Centro Studi Preistoria e Archeologia (MI)) – Fabio Rossi (Museo della preistoria della Tuscia e della Rocca Farnese (Valentano, VT) | Centro Studi Preistoria e Archeologia (MI)) – Silvia Amicone (Archaeometry Research Group, University of Tübingen | Institute of Archaeology, University College London)

Reddish coarse ware jars represent a widely distributed class of functional ceramics found between the Final Bronze Age and the Early Iron Age in Etruria (modern Tuscany and Latium, central Italy). These vessels have been discovered primarily at coastal sites and are traditionally associated with salt production. However, this interpretation remains contested among scholars, and the function of these vessels, together with the role of the coastal sites where they were found, remains debated. This paper presents the results of a study on pottery from the site of Duna Feniglia (Orbetello, central Italy), dated to the late 9th to early 8th century BCE. Excavations at Duna Feniglia primarily retrieved fragments of reddish coarse ware jars, along with structural remains likely associated with some type of production installations. To investigate raw material procurement, production technology and circulation of these vessels, we applied an integrated archaeometric approach—including ceramic petrography, X-ray fluorescence, and X-ray diffraction—on 65 pottery samples. Additionally, we analysed geological samples from the surrounding area and compared the Duna Feniglia data with a broad set of ceramic samples from other Etrurian sites. Our results indicate considerable variability in petrographic fabrics, revealing significant differences in raw material selection and processing. This heterogeneity of the ceramic pastes suggests that the assemblage may either represent outputs from multiple production places across Etruria or reflect a natural variability of local raw materials. By exploring these technological choices, this study aims to provide insights into exchange networks and the role of these utilitarian vessels in coastal economic activities.

861. SHEDDING LIGHT ON THE ANCIENT SETTLEMENT OF KARABOURNAKI: THE LAMPS

Contribution format: Oral  
Contribution authors: Konstantina Tsonaka (Aristotle University of Thessaloniki)

The present paper examines the lamps from the ancient settlement of Karabournaki in Thessaloniki, located on the top of a mound at the edge of the promontory on the Thermaic Gulf. Part of the mound is now submerged under the sea level. Despite the lack of epigraphic evidence, the site is identified with the harbor of ancient Therme, the most important settlement before the establishment of Thessaloniki in the late 4th century BCE. Since 1994, when the Aristotle University of Thessaloniki began the systematic excavation of the site, around 400 inventoried lamps have been brought to light. Most are in a fragmentary or partial state of preservation, with a few complete examples. The vast majority of the lamps are wheel-made, with a limited number being handmade. Chronologically, they range from the Late Iron Age to the Classical era, while a few findings from the Roman period suggest a possible continuous habitation activity. The bulk of the recorded material is dated to the Archaic period, which coincides with the settlement’s peak period during that time. This becomes of particular interest when considering that lamps in northern Greek region appear sporadically from the 6th c. B.C., with an increasing trend during the 5th c. B.C. The imported lamps from the major pottery centers of this period (Attica, Corinth, Eastern Greece, Ionia) dominate, although local products are also present. The study of the lamps at Karabournaki aims to enhance our understanding of this coastal settlement and its inhabitants, as well as its connections with the rest of the known ancient world.

2124. MORE THAN JUST CLAY AND LEAD? REPAIRED UTILITARIAN VESSELS FROM HELLENISTIC KALAUREIA

Contribution format: Oral  
Contribution authors: Sara Eriksson (UC Berkeley)

An assemblage excavated at the Sanctuary of Poseidon at Kalaureia on the Greek island of Poros contained several ceramic fragments from plain and cooking ware vessels that were once repaired using lead clamps. Despite evidence of repaired vessels like these showing up on ancient sites across the Mediterranean in contexts from different time periods, little work has been dedicated to this find category. In a close study of successful and failed attempts to repair utilitarian vessels using lead, I think through how the repairs might have been done, who might have done them, and what the reason for repairing might have been. What archaeologists perceive as the main object of analysis is not necessarily the same as what an ancient Greek person would have seen. To us today, a pot repaired with lead is still primarily a pot. The lead repair is just an attribute, assumed to have played



a secondary role in the clay-lead assemblage. I ask what becomes visible if I assume that what emerges from a broken pot and a lead clamp coming together is something more than just pieces of lead and pieces of ceramic. What agential capabilities did the lead have, and how would they have changed the capabilities of the vessel? While the decision to mend the vessel is taken by a human, adding the lead clamp makes new non-human agential powers emerge – and not just in the way the humans using the pots might decide or believe. The clay, the lead, other ingredients added to the repair during the process, as well as the contents of the vessel all have a say in what the new assemblage becomes and how it acts.

1642. SNAP-SHOTS FROM 280 BCE ETRURIA. UTILITARIAN POTTERY IN THE FORTRESS OF ROFALCO

**Contribution format:** Oral  
**Contribution authors:** Chiara Martina Papa – Elisa Abbondanzieri (Sapienza Università di Roma) – Orlando Cerasuolo (Parco Archeologico di Cerveteri e Tarquinia, Ministero della Cultura) – Tania Freixas Roig (Grup de Recerca en Arqueologia Protohistòrica - Universitat de Barcelona) – Luca Pulcinelli (Soprintendenza Archeologia Belle Arti e Paesaggio dell’Umbria, Ministero della Cultura) – Martina Sabbatini (Università degli Studi di Torino) – Lorenzo Somma (Independent) – Marta Valerio (Università degli Studi di Firenze | Università degli Studi di Torino)

It was the winter of 280 BCE when the Roman conquest of the territory of Vulci was concluded. The conquest results were dramatic and even the small fortress of Rofalco (nowadays in the municipality of Farnese, VT), after only 50 to 70 years of life, was set on fire, destroyed and abandoned. The archaeological excavations, conducted since 1996 inside the imposing defensive walls, have brought to light warehouses, functional buildings, cisterns, and, above all, houses. Numerous stratigraphic contexts, sealed under burnt layers, have yielded objects related to daily life, in particular tools and vases. The fine pottery (e.g. bucchero, plain or overpainted black glaze pottery, figured pottery) allows us to both pinpoint the date of the fortress’ foundation and destruction and also to show how the upper classes represented themselves. But how did Etruscan soldiers, their families, and servants live in the 4th-3rd century BCE? What were their homes like? How did they store food? What did they eat and how did they cook? The utilitarian ceramics of Rofalco allow us to answer these and other questions. A vast sample of ceramic shapes will be presented: some very common (e.g. plates, cups, basins, saucepans, lids, jars, doli, jugs, amphorae), others rather rare (honey-pots, vases for breeding dormice, etc.). The quantitative and dimensional analyses performed on this sample will be discussed to address issues such as standardization, while a study of associations and distribution will lead to the interpretation of household vs. communal/centralized production and consumption. The analytical investigation of the findings allows us not only to get closer to the daily life of the last Etruscans, but also to define indicators and associative patterns useful to understand the buildings’ function in archaeological contexts.

159 FROM BONES TO BELIEFS: HUMAN RESILIENCE IN THE MULTI-FAITH MEDIEVAL ISLAMIC MEDITERRANEAN

**Session theme:** 2. Intertwined Epistemologies: Transcending the Data – Theory Divide  
**Session format:** Regular session  
**Session keywords:** Osteoarchaeology, Activity and diet, Migration and mobility, Health and disease, Social interactions  
**Session organisers:** Jared Carballo Pérez (Universitat Autònoma de Barcelona) – Michelle Alexander (University of York) – Jesús Brufal Sucarrat (Universitat Autònoma de Barcelona)

SESSION ABSTRACT

Between the 7th and 16th centuries, the Mediterranean regions under Islamic rule were dynamic and multi-faith landscapes where Muslim, Christian, and Jewish communities coexisted, interacted, and adapted to significant social and environmental changes. This session seeks to explore human resilience during this period by examining human remains from archaeological contexts across culturally diverse societies. By integrating bioarchaeological evidence—including osteological and biomolecular data— with social theoretical approaches, we aim to understand how individuals and communities responded to transformations such as agricultural innovations, urbanization, shifts in social structures, and environmental challenges. We encourage contributions that employ interdisciplinary methods to investigate aspects like health, diet, physical activity, migration patterns, and the complexities of interfaith interactions—whether through peaceful coexistence or conflict—. This session invites to integrate studies of human remains with archaeological findings and historical sources to reconstruct the lived experiences of these societies. By delving into the ways people adapted biologically and culturally in multi-faith

contexts within Islamic governance, we hope to shed light on the mechanisms of resilience that allowed these communities to navigate and thrive amidst change. This platform offers an opportunity for researchers to share insights and methodologies that enrich our understanding of the interconnectedness of human remains and beliefs in the Medieval Mediterranean, contributing to a more nuanced narrative of this pivotal historical period.

CONTRIBUTION ABSTRACTS

858. THE FIRST BIOARCHAEOLOGICAL STUDY OF A MEDIEVAL CEMETERY IN NORTH AFRICA: THE EARLY ISLAMIC MAQBARA AT KACH KOUCH (MOROCCO)

**Contribution format:** Oral  
**Contribution authors:** Hamza Benattia Melgarejo (Universitat de Barcelona) – Jared Carballo Pérez (Universitat Autònoma de Barcelona) – Meryem Benerradi (Institut national des sciences de l’archéologie et du patrimoine (INSAP)) – Jorge Onrubia Pintado (Universidad de Castilla-La Mancha) – Youssef Bokbot (Institut national des sciences de l’archéologie et du patrimoine (INSAP))

Islamic archaeology in North Africa has been overwhelmingly written from the perspective of monumental archaeology, prioritising the study of large settlements while neglecting the relevance of human remains for the study of the Early Medieval period. This paper presents the results of research at the Early Islamic maqbara at Kach Kouch (cal. 992-1210 AD). The strategic location of the site, at the west end of Mediterranean Africa, near the Strait of Gibraltar, indicates its hitherto unrecognised significance within a wider exchange network connecting Western Rif communities with the rest of the region. The site once stood in the borderlands of two early Islamic states: the Nakkour and the Idrisid Emirates. Previous research carried out in the area has demonstrated an early Islamic presence in the region, probably under the influence of the city of Tigisas, one of the most important early Islamic settlements of Mediterranean Morocco. The cemetery comprises the remains of at least 31 individuals interred in pits excavated on the geological level, in right lateral decubitus position with the heads pointing southwest and the feet pointing northeast in line with Islamic practices. The study of the human remains has offered some interesting data. More than half of the burials belonged to preadults, which implies a high child mortality. The analysis of the bone markers suggests that some of these individuals suffered malnutrition and endured hard activities related with agricultural practices and handicraft which led, in some cases, to the development of diseases such as osteoarthritis or caries. This study provides the first reference dataset for Medieval Islamic bioarchaeology in North Africa and contributes to broader discussions on health, mobility, and funerary practices in Early Islamic western Mediterranean and North Africa.

2083. RELIGIOUS PERSISTENCE: BIOARCHAEOLOGICAL PERSPECTIVES OF THE MINORITY RURAL MOZARABIC COMMUNITY OF TÓZAR (GRANADA)

**Contribution format:** Oral  
**Contribution authors:** Michelle Alexander (University of York) – Jared Carballo-Pérez (Universitat Autònoma de Barcelona) – Sylvia Jiménez Brobeil – Luca Mattei (Universidad de Granada)

The rural site of Tózar offers a unique opportunity to examine the persistence of Christian Dhimmi communities under Islamic political rule. This community endured the process of social reconfiguration and cohabitation processes that shaped the settlement patterns of the western mountains of Granada during the 9th-12th centuries CE. Excavations at Tózar have identified more than one hundred rock-cut anthropomorphic tombs with Christian funerary ritual burials. Radiocarbon dating (14C) confirms the use of the necropolis from at least the 10th to the early 13th century. This community challenges the traditional belief the majority of the Al-Andalus Mozarabs were expelled in the first half of the twelfth century. Osteological analysis of 74 excavated individuals reveals a high frequency of sub-adult burials and indicators of physiological stress such as enamel hypoplasia, cobra orbital and periodontal disease. We further applied a multi-isotopic approach incorporating analysis of carbon (δ13C), nitrogen (δ15N) and oxygen (δ16O) of 42 individuals representing non-adults (n=10) and adults (n=32) to explore diet, supply and food production, as well mobility in this minority Christian rural community. δ13C and δ15N data for the human population is interpreted with a contemporaneous animal baseline (n=32) from the adjacent settlement, and isotopic results are further placed in the context of available data from Late Roman-Medieval communities from Andalucia, which indicates that Mozarab diet was comparable to Late Roman diet rather than that of the Medieval Muslim populations published so far. The (δ16O) data suggests the presence of some individuals who may be non-local, which extends the historical interest in this community. The bioarchaeological research, together with the material evidence from the settlement, contribute to discussions on Islamization and cultural adaptation in al-Andalus, demonstrating how multi-disciplinary approaches can illuminate identities that remain invisible in written sources.



1432. MEDIEVAL SICILY: A GENETIC JOURNEY

**Contribution format:** Oral  
**Contribution authors:** Aurore Monnereau (BioArCh, University of York | Globe Institute, University of Copenhagen) – Martin Carver (BioArCh, University of York) – Alessandr. Molinari (Università degli Studi di Roma Tor Vergata) – Camilla Speller (BioArCh, University of York | University of British Columbia) – Nathan Wales (BioArCh, University of York)

The medieval period in Sicily saw successive regime changes, from Byzantine to Aghlabid, Fatimid, and finally Norman and Swabian rule. While historical accounts provide invaluable perspectives on these events, archaeological data offers a complementary avenue to understand the impacts on daily life, especially for communities away from the political centre. We aim to explore the local impacts of these transitions through a multidisciplinary analysis of human remains notably from one particular site, Segesta, western Sicily dating back to the Norman Period. By combining radiocarbon dating, genome-wide sequencing, isotopic data, and archaeological records, we investigated individuals buried in adjacent Muslim and Christian cemeteries. This presentation will particularly focus on the ancient DNA analyses, which followed state-of-the-art methods. Ancient DNA was extracted from petrous bones, long bones, and teeth. Double-stranded libraries were built and a whole-genome sequencing approach was used. Initial analyses confirm ancient DNA sequences and reveal variable DNA preservation. Genome-wide data revealed genetic differences between the Muslim and Christian communities, with no evidence of admixture, yet continuity in aspects of life like diet. The absence of admixture observed at Segesta raises the question of whether this is a particular case or a broader trend across the island, highlighting the importance of obtaining more data from this region during this period to improve accuracy. The success of the project encourages further investment in multiproxy-analyses to enhance our understanding of the demographic and cultural transformations in medieval Sicily and beyond. This presentation is based on research conducted by the SICTRANSIT team, including Aurore Monnereau, Alice Ughi, Paola Orecchioni, Richard Hagan, Helen M. Talbot, Efthymia Nikita, Derek Hamilton, Petrus Le Roux, Alessandra Molinari, Martin Carver, Oliver E. Craig, Camilla F. Speller, Michelle M. Alexander and Nathan Wales.

261. COMPARING LIVING CONDITIONS OF ISLAMIC AND CHRISTIAN COMMUNITIES THROUGH HUMAN OSTEOARCHAEOLOGY IN DUCHY OF GANDIA (VALENCIA, SPAIN – 13TH-16TH CENTURIES)

**Contribution format:** Oral  
**Contribution authors:** Daniela Lorente (Universitat de Valencia | British Association Forensic Anthropology | British Association for Human Identification)

This presentation outlines the general approach of my ongoing PhD project, along with its initial unpublished results. The project focuses on the osteoarchaeological study of human remains from various Islamic and Christian cemeteries in La Safor, Valencia (Spain). The objective is to provide bioarchaeological data from these communities for comparative analysis. The individuals’ analyses will focus on their biological sex, age at death, height, pathologies, and stress markers from an anthropological perspective. This study aims to provide detailed insights into these populations’ quality of life and health. In a later stage, carbon and nitrogen isotope analyses of bone collagen will enhance our understanding of their dietary habits and agricultural practices. This research will offer a new archaeological perspective on the current historiographical discussions about the role of the Muslim population within the agricultural and economic systems dominated by feudal Christian society in the Duchy of Gandia between the 13th and 16th centuries. During this period, the landscape saw the expansion of irrigation crops and the cultivation of sugar cane, developments closely linked to the Islamic communities. This transformation helped turn the Duchy of Gandia into one of the wealthiest domains in Western Europe during the 16th century. The researcher will then incorporate the results into a wider debate, which considers similar analytical evidence for the case of medieval Islamic and Christian societies in the immediately preceding Mediterranean Iberian region, strengthening the discussion of continuity and change in health, diet, and labor-related stress of these populations.

798. DEATH AND LIFE WITHIN THE CITY WALLS: NEW PERSPECTIVES FROM THE MAQBARA OF MADINAT BALAGHÍ (PLA D’ALMATÀ, CATALONIA)

**Contribution format:** Oral  
**Contribution authors:** Andrea Collado Padilla – Jared Carballo Pérez – Helena Kirchner Granell (Universitat Autònoma de Barcelona)

Recent excavations at the medieval Islamic cemetery of Pla d’Almatà (Madinat Balaghí, Catalonia) are providing new perspectives on the health, lifestyle, and social structures of this urban population. Preliminary bioarchaeological examinations highlight a range of adult and subadult remains, often preserved in their original right-lateral position facing southeast in accordance with Islamic burial rites. Despite this standardized orientation, some individuals exhibit taphonomic alterations, including evidence of re-deposition and grave reuse, suggesting complex

post-burial processes. Early paleopathological analyses reveal variations in biomechanical and metabolic stress markers. Some remains display evidence of moderate physical activity—reflected in enthesopathies on the upper limbs—while others exhibit indicators of nutritional deficiencies and inflammatory conditions. These findings provide insights into dietary diversity, labor organization, and overall community health in a growing Islamic urban center. Additionally, the discovery of selectively covered graves suggests evolving mortuary practices, possibly in response to changing social or economic dynamics. Although many aspects of the cemetery’s extent remain to be determined, ongoing examination of the human remains, combined with isotopic and radiocarbon analyses, is refining our understanding of health, mobility, and socio-economic exchange in this medieval hub. By integrating contextual data—such as the reuse or overlap of grave features—we aim to elucidate how communal identities and resilience strategies developed in a space shaped by agricultural activity, urban expansion, and broader regional dynamics.

464. GENOMIC INSIGHTS INTO EARLY ISLAMIC PERIOD IN NORTHERN IBERIA

**Contribution format:** Oral  
**Contribution authors:** Vanessa Villalba-Mouco (Institute of Evolutionary Biology, CSIC-Universitat Pompeu Fabra | Department of Archaeogenetics, Max Planck Institute for Evolutionary Anthropology, Leipzig | Max Planck Harvard Research Center for the Archaeoscience of the Ancient Mediterranean (MHAAM)) – Patxuka De-Miguel-Ibáñez (Instituto Universitario de Arqueología y Patrimonio Histórico-Universidad de Alicante | Hospital Virgen de los Lirios-Fisabio (Alcoi-Alicante) | Sociedad de Ciencias Aranzadi) – Roberto Risch (Department of Prehistory, Universitat Autònoma de Barcelona) – Concepción De La Rúa – Montserrat Hervella (Department of Genetics, Physical Anthropology and Animal Physiology. UPV/EHU, Bizkaia) – Carles Lalueza-Fox (Museu de Ciències Naturals de Barcelona) – Johannes Krause (Department of Archaeogenetics, Max Planck Institute for Evolutionary Anthropology, Leipzig | Max Planck Harvard Research Center for the Archaeoscience of the Ancient Mediterranean (MHAAM)) – David Reich (Department of Human Evolutionary Biology, Harvard University | Department of Genetics, Harvard Medical School, Boston, MA, UAA. | Howard Hughes Medical Institute, Boston | Broad Institute of MIT and Harvard) – Iñigo Olalde (BIOMiCs Research Group, Dept of Zoology and Animal Cell Biology, UPV/EHU, Vitoria-Gasteiz | Ikerbasque—Basque Foundation of Science | Department of Human Evolutionary Biology, Harvard University)

711 CE marks the onset of the Islamic Period in the Iberian Peninsula. Al-Andalus, the political entity that arose, was a remarkable melting pot of diverse human identities, encompassing different geographical origins, cultural traditions, and religions. While historical sources and archaeology have provided valuable insights, the extent of demographic and genetic changes accompanying the religious transformations of the society remains unclear. Here, we generated human genome-wide data using in-solution enrichment from 198 individuals from the city of Pamplona (northern Iberia), including pre-islamic archaeological sites and the 168 individuals from the Maqbara of Plaza del Castillo burial ground, one of the earliest Islamic cemeteries in Iberia dated to the first half of the 8th century CE. Our results prove the arrival of new ancestries from North Africa and the Middle East only during the Islamic period. However and despite the homogeneity of the Muslim burial rite in the Maqbara of Plaza del Castillo, we identify a mix of ancestry profiles, highlighting local ancestry as well as Middle Eastern and North African ones in mixed and unadmixed form. The preliminary results obtained from the reconstructed pedigrees at the site suggest that this cemetery represents the first few generations of intermarriage with several examples of North African/Near Eastern men and local women. We also find intermarriage among local men and local women, showing a higher level of consanguinity within this group. The study provides high-resolution demographic changes and correlates these with political shifts, shedding new light on biological interactions and the permeability of communities, which align with the social processes at play during the early Islamic rule in Northern Iberia. The study showcases an innovative approach that combines high-quality contextual and genetic data, achieved through close collaboration with experts in the field.

248. ACROSS THE BORDER. EXPLORING DIETARY PATTERNS IN NORTHEASTERN MEDIEVAL IBERIA

**Contribution format:** Poster  
**Contribution authors:** Julia Olive Busom (Universitat Autònoma de Barcelona | University of Bonn)

The northeastern area of Medieval Iberia was home to a large and stable border region between Al-Andalus and the Christian Kingdoms, known as the Upper Frontier, where Christian and Muslim communities lived together, allowing for a perfect opportunity to address lifestyle changes in form of dietary differences during childhood and adulthood. Here, we discuss the lifestyles of two populations, Balaguer, an urban Islamic necropolis, and Santa Coloma d’Àger, a rural Christian necropolis under Islamic rule (Mozarabs) through stable isotopes analysis



in both bone and dentine of osteologically well preserved individuals, which allow us to explore their dietary practices during childhood and adulthood. Furthermore, we integrate them into a larger regional picture in order to assess whether the observed differences are part of a larger trend or practices nestled in locality, and discuss whether these differences illustrate possible different choices in diet that are exclusive to certain communities according to their religious or socioeconomic status.

2277. SURVIVORS’ UNYIELDING SPIRIT IN OVERCOMING ADVERSITY: EVIDENCE OF REMODELED BONE LESIONS IN THE NECROPOLIS OF SANTA MARIA (IDANHA-A-VELHA, PORTUGAL)

**Contribution format:** Poster  
**Contribution authors:** Ana Maria Silva (CIAS - Department of Life Sciences, University of Coimbra) – Carla Ribeiro (Município de Idanha-a-Nova) – Rosa Gaspar (Medical Imaging Department, Hospital of University of Coimbra) – José Cristovão (Município de Idanha-a-Nova) – Catarina Tente (Nova University Lisbon) – Pedro Carvalho (Faculdade de Letras, Universidade de Coimbra) – Álvaro M. Monge Calleja (CIAS)

The Portuguese necropolis of Santa Maria (Idanha-a-Velha, Castelo Branco), dating largely from the 12-13th centuries, is notable for its rich historical and cultural heritage, but also due to the high prevalence of severe healed pathologies detected in the unearthed human skeletons. Twenty-seven out of the 44 adult individuals exhumed (61.36%) had evidence of having, at least, one pathological skeletal condition. This paper focuses on seven adult individuals (five men, one female and one individual of undetermined sex), which showed unusual, acute, and distinctive bone alterations to fill the scarcity of medieval historical, medical and archaeological data of this territory. After a macroscopic and imaging (X-rays and CT scans) paleopathological evaluation, several conditions were diagnosed, as osteochondritis dissecans, post-traumatic osteomyelitis, Dieterich’s or Mauclaire’s disease, osteonecrosis, healed high-energy trauma and a parosteal osteosarcoma. Most of these alterations are associated with repetitive (micro)traumas, serving as proxies to infer daily activities such as farming, hunting and cattle breeding, among others. The severity of observed trauma combined with their healing status, is not only a reflection of social and familial networks, highlighting the role of interpersonal care, but also of the resilience of these individuals facing the rudimentary medical practices at the time.

160 FRONTIERS AND INTERACTION ZONES. DISENTANGLING PROCESSES OF CULTURAL EXCHANGE IN LIMINAL AND CONTESTED AREAS

**Session theme:** 2. Intertwined Epistemologies: Transcending the Data – Theory Divide  
**Session format:** Session with precirculated papers  
**Session keywords:** Frontiers and Interaction Zones, Material Evidence of Liminal and Contested Areas, Global Theoretical Discourse  
**Session organisers:** Calla McNamee (University of Calgary) – Salvatore Vitale (Università di Pisa) – Kathryn Reese-Taylor (University of Calgary)  
**Session discussant:** Francesco Iacono (University of Bologna)

SESSION ABSTRACT

The concept of frontiers has held connotations of places that are unknown, sparsely populated, separated from a cultural core, and open for exploration. This notion has been criticized for its western European emphasis on colonialization, as well as for underestimating the extant development and complexity of indigenous communities. As a result, archaeological theory has utilized alternative terms, particularly interaction zones, to discuss the material evidence located in-between different cultural core areas. We believe that frontiers and interaction zones are distinct concepts that can contribute to our understanding of the diversity and complexity of archaeological records. Both terms indicate areas where existing communities are exposed to the influence of features from one or more external, expanding cultural areas. How these elements become incorporated into the material assemblages of these areas is highly variable, depending on the regions’ existing complexity, the location with respect to external influences, the manner of interaction, and the agency of local communities and their leadership. In archaeological dialogues, these elements often dictate whether an area is considered a frontier or an interaction zone, yet the rationale for the designation is often lacking and the assumed boundaries or borders of the surrounding core areas are rarely discussed. Through the incorporation of archaeological research conducted globally from different temporal periods, this session seeks to stimulate theoretical discussion on the definitions and manifestations of frontiers and interaction zones. At the theoretical level, our aim is to explore the advantages and disadvantages provided by these terms in capturing and disentangling the complex processes of cultural exchange that occur in liminal zones. At the material level, we encourage the submission of case studies that discuss how culture manifests in these zones, including the contextual analysis of the formal characterization

and functional implementation of built environments, mortuary practices, ceremonial activities, and archaeological artifacts.

CONTRIBUTION ABSTRACTS

2110. EARLY NEOLITHIC INTERACTION ZONES IN BRANDENBURG, NORTH-EASTERN GERMANY

**Contribution format:** Oral  
**Contribution authors:** Sophie Schmidt (Freie Universität Berlin)

The early Neolithic in Brandenburg, North-Eastern Germany, is still badly understood. Far away from the well researched and fertile areas of the loess-belt, there are nonetheless significant material remains of Linearbandkeramik (LBK) settlers, starting at the end of the 6th mill BC. Their ceramic traditions seem to be culturally influenced from nowadays Central Germany (Saxony and Saxony-Anhalt) as well as from nowadays Poland. After the collapse of the LBK oecumene, Central Germany influenced post-LBK cultures such as Stroke Ornamented Ware culture (SBK) and Rössen culture are also present. Influences from Poland come in form of the so-called “Stichreihenkultur” (SRK), which is the Polish Stroke Ornamented Ware culture (kultura późnej ceramiki wstęgowej) and the “Guhrauer Gruppe” (Guhrau Group, grupa gorowska). The Guhrau Group shows a mixture of elements from Stroke Ornamented Ware, Rössen and Brześć-Kujawski, a Polish culture dating 4400-4000 calBC with its core region in Kujawy. A mesolithic ceramic group, the Friesack-Boberg Group, seems to form in the 5th mill BC as well. Thus, Brandenburg lies at the periphery of several neolithic phenomena while maintaining a strong hunter-gatherer presence until probably 4000 BC. It can be characterized as an interaction zone, as there is evidence of interaction between Stroke Band Pottery Culture and Rössen culture, as well as Rössen culture and Mesolithic communities. The Guhrau Group seems to be the result of prolonged and intensive contacts between people of different ceramic traditions. Mesolithic influence on Neolithic communities may be a reason for the strong hunting and fishing component in the subsistence of the early Neolithic in Brandenburg. This talk aims at developing a model of interaction and intercultural influence for the region in the 5th mill BC.

1223. DISTRIBUTIONS OF COPPER AND BRONZE TECHNOLOGICAL STYLES IN LATE CHALCOLITHIC AND EARLY BRONZE AGE CENTRAL ASIA, INTERPRETED THROUGH PASTORAL MOVEMENT

**Contribution format:** Oral  
**Contribution authors:** Rachele Bianchi (University of Toronto)

Patterns of artefact distribution in Bronze Age Central Asia, particularly from the Middle Bronze Age onwards, are frequently discussed in relation to the concept of Interaction Spheres and the role of peripheries and liminal areas. In this paper, I focus on the earlier period to argue that the Interaction Sphere concept is not useful in these temporal contexts. Instead, based on the distribution of metal objects, interaction is better explained through individual contacts during seasonal movements of pastoralists. While the socio-economic impact of pastoralism, particularly sheep grazing, is one of the more thoroughly investigated themes in contemporary ethnohistoric and archaeological landscape studies for Central Asia, the cultural implications of pastoralist practices in relation to metalworking techniques of the Late Chalcolithic and Early Bronze Age of Central Asia remain relatively understudied. I use geographical patterns of technological style, based on compositional and metallographic data collected from copper and bronze artefacts, to delineate the “metalscape” of the Late Chalcolithic and Early Bronze Age and to propose an explanatory model for such distributions, based on reconstructed seasonal pastoral mobility. I propose that pastoralists’ patterns of horizontal and vertical transhumance were instrumental in establishing and maintaining interactions across the steppes and mountain ranges of Central Asia, including technological knowledge and practices for metalworking.

1371. A TWO-WAY STREET: REVISITING CORE-PERIPHERY INTERPRETATIONS USING HIGH RESOLUTION SUBSISTENCE DATA FROM A NORTHERN ARIZONA HINTERLAND

**Contribution format:** Oral  
**Contribution authors:** Calla McNamee (University of Calgary) – Alan Sullivan III (University of Cincinnati) – Philip Mink II (University of Kentucky)

Archaeological discussions of frontiers have traditionally involved attempts to interpret “peripheries” with reference to the often extensive research from adjacent “core” areas. Such studies assume that our understanding of “cores” provides the most accurate picture of an area’s overall cultural characteristics, including its hinterlands. In this paper, we utilize the in-depth study of subsistence practices from a hinterland, the Upper Basin (UB) and surrounding uplands of the Grand Canyon (Northern Arizona), to emphasize how research from frontiers can illuminate gaps in our understanding of regional practices based on core data. The UB is located at the crossroads of three distinct Puebloan “cultures”, the Virgin and Kayenta Anasazi and the Cohonina. Prior to widespread perennial occupation around AD 600 by populations arriving from surrounding ‘core’ areas, the area was



largely uninhabited. Multi-decadal research by the Upper Basin Archaeological Research Project has developed archaeobotanical and paleoenvironmental evidence indicating that the area’s population relied primarily on wild resources cultivated through land management and anthropogenic burning, practices that differ from the traditional reliance on maize agriculture postulated for nearby cores. Two alternative explanations thus emerge: Is this an isolated adaptive strategy developed by populations to survive in a pristine environment? Or did the populations moving into this area have prior knowledge of these forms of resource management? We suggest that the UB populations arrived possessing pre-existing traditional ecological knowledge to manage the landscape through anthropogenic burning. While the UB populations clearly capitalized on this knowledge to ensure a stable food supply, this practice must have been utilized by nearby ‘core’ populations. In addition to demonstrating the need to reassess the existing data from ‘core’ areas, our results emphasize the need to redirect future work in ‘core’ areas to refine our understandings of what constitutes archaeological evidence of frontiers and boundaries.

**1238. THE SIGHT OF THE STRANGER: MARITIME INTERACTION AND PERFORMANCE IN THE LATE BRONZE AGE PORTS OF THE MEDITERRANEAN**

**Contribution format:** Oral  
**Contribution authors:** Angela Falezza (University of Oxford) – Francesco Iacono (Università di Bologna)

Situations of cultural encounters are increasingly recognised as crucial contexts, profoundly affecting the social dynamics and identity of people and groups. Yet the actual actions involved in these encounters and their ephemeral traces are an elusive field of enquiry that has rarely been at the centre of archaeological investigation. In this paper we attempt an assessment of the micro event-level of interaction during the 2nd millennium BC Central Mediterranean, a moment when groups and individuals with different cultural backgrounds were put in prolonged contact. In such a context, ports make optimal border zones for encounters to take place, and taking them into account can provide a useful guide for envisaging the practicalities of interaction and how these affected the outcome of encounters. This paper analyses the different stages of encounters by looking at evidence from Late Bronze Age ports in the Aegean and Central Mediterranean. Information can be obtained from the analysis of the architectural organisation of the site, naval architecture and archaeological artefacts.

**1378. CULTURAL INTERACTION, LOCAL AGENCY, AND THE FORMATION OF POLITICAL LEADERSHIP: A LATE HELLADIC IIA FEASTING CONTEXT FROM MITROU, CENTRAL GREECE**

**Contribution format:** Oral  
**Contribution authors:** Salvatore Vitale – Francesca Nani (University of Pisa)

In this paper, we focus on a Late Helladic (LH) IIA Early deposit from the area of Building H, at Mitrou, East Lokris, which included the remains of pottery vessels used during feasting activities at the site. Located at the center of the Euboean Gulf, a key passageway between the southern and northern Aegean, Mitrou was an important harbor station for collecting and redistributing goods in central Greece, thus representing an ideal site for the analysis of interaction zones and processes of cultural exchange. Our study shows that early in LH IIA Mitrou’s rising elites used two distinct imported classes in feasting events at the site in order to stimulate the greatest visual and emotional impact on the participants. These consisted of Aeginetan vessels for serving and mixing and Mycenaean shapes for drinking. While the occurrence of these prestigious imports indicates the competitive economic and cultural expansion in central Greece of workshops located at the two core manufacturing areas of these classes, namely Aegina and the northeast Peloponnese, their implementation at Mitrou shows that rising local elites used feasting ceremonies as arenas for the negotiation of status and power. Our work demonstrates that interaction zones are not simply regions in which existing communities are exposed to the impact of other expanding areas. On the contrary, they are often ideal spaces for the formation of multifaceted assemblages of practices, which local agencies can manipulate to serve their own cultural strategies. At Mitrou, the incorporation of Aeginetan and Mycenaean pottery imports in feasting ceremonies was instrumental to the development of social complexity and the establishment of political leadership.

**1700. MOBILITY IN A STATIC LANDSCAPE: THE ROLE OF ROADS IN INTERPRETING SETTLEMENT PATTERNS**

**Contribution format:** Oral  
**Contribution authors:** Jędrzej Hordecki (Department of Anthropology, Wrocław University of Environmental and Life Sciences)

Past societies, when studied as actors within settlement networks, are often perceived as highly static. Archaeologists tend to conceptualize them as mere dots on a map—dots that, by definition, lack mobility. This perspective leads to the petrification of past settlement systems and discourages the incorporation of mobility as a critical factor in their interpretation. This paper examines settlement patterns in Central Anatolia during the Iron Age. Traditionally, this region has remained at the margins of major research agendas, but in recent years, it

has begun to receive increasing scholarly attention. However, despite ongoing investigations, the settlement landscape is still largely perceived as static. This is primarily due to the enduring “dots on a map” perspective, which reduces settlements to fixed points rather than recognizing them as dynamic entities. Yet, these dots represent not only settlements but also the people inhabiting them and their interactions—both within individual settlements and across wider regional networks. A crucial yet often overlooked factor in understanding mobility and inter-settlement interactions is the role of roads and communication networks. Roads are fundamental infrastructural elements that facilitate movement and connectivity. This paper explores the potential road system of Central Anatolia during the Iron Age, employing geospatial methodologies—primarily least-cost analysis—to model possible route networks and identify key corridors of movement. By integrating this approach, the traditionally static representation of the settlement landscape is recontextualized within a framework of mobility, allowing for a more dynamic interpretation of spatial organization through both space and time. This perspective is particularly significant for understanding Central Anatolia in the Iron Age, as the connections and relationships that emerged during this period can often be traced in subsequent historical developments.

**1017. DYNAMIC TERRITORIES IN EARLY IRON AGE CENTRAL SLOVENIA**

**Contribution format:** Oral  
**Contribution authors:** Matic Zupan (National museum of Slovenia)

The Early Iron Age in central and southeastern Slovenia has been a focal point of archaeological research for over a century, revealing a landscape dominated by central hillforts and barrow cemeteries associated with the so-called Dolenjska Hallstatt cultural group. This region saw major shifts in settlement patterns and material culture after the turbulent period of the 6th century BC. Traditionally, these changes have been linked to invading Scythian communities from the east, often framing the development in binary models, such as cultural collapse versus survival of communities and a distinction between core and peripheral zones. However, only recently has this landscape been examined through the lens of dynamic spatial interactions, incorporating concepts such as frontiers and buffer zones. This case study focuses on settlement patterns, material culture and spatial organization in central Slovenia from the 6th to 4th Century BC by integrating theoretical perspectives, GIS-based analysis and archaeological evidence from fortified hillforts and burial sites. The evidence suggests a complex web of local and interregional interactions, demonstrating that local communities were not just passive recipients of external influences, but actively shaped their identities through adoption of and adaptation to cultural traits. By critically engaging with the concepts of territoriality, frontiers and interaction zones, this study challenges the traditional views and presents a more nuanced approach that acknowledges the agency of communities in navigating political pressures, economic opportunities and social transformations The case of central Slovenia highlights that frontiers were not defined by isolation but rather by ongoing negotiation, settlement dynamics and interaction. This study contributes to broader discussions on territory dynamics in European prehistory, underscoring the need to reassess conventional models of territoriality and cultural boundaries.

**2207. THE BAJO EL LABERINTO REGION: A DYNAMIC CULTURAL FRONTIER ZONE IN THE MAYA LOWLANDS**

**Contribution format:** Oral  
**Contribution authors:** Kathryn Reese-Taylor (University of Calgary) – Felix Kupprat (Universidad Nacional Autónoma de México) – Armando Anaya Hernández (Universidad Autónoma de Campeche) – Debra Walker (University of Florida) – F. C. Atasta Flores Esquivel (Universidad Nacional Autónoma de México) – Verónica Vázquez López (University College London)

While political diversity in the Maya Lowlands has been the focus of many ongoing studies, a deeper understanding of socio-cultural differences, although recognized, has lagged behind. Many have chosen to focus on various individual markers of these distinctions, including but not limited to, languages, body modifications, pottery types, architectural styles, urban layouts, religious practices, and political affiliations, whereas few studies have incorporated multiple markers of identity. Since 2011, we have conducted investigations in the Bajo El Laberinto region, which is situated in the center of the Maya Lowlands. In this paper we will introduce multiple categories of material culture that signal both local and non-local cultural affiliations. Based on our research, we infer that diverse traditions converged in this region. For example, strong relationships with the northern Yucatan, the Chetumal Bay area, the Rio Bec region, and the southern and western lowlands are evident in various categories of cultural material during the long history of occupation in this region, although the degree of affinity with each zone fluctuates through time. Therefore, we suggest that the Bajo El Laberinto area constituted a dynamic frontier zone between several distinct cultural areas in the Maya Lowlands.



968. UNVEILING THE FRONTIER SOCIETY: BURIAL PRACTICES AND SOCIAL DYNAMICS IN THE EASTERN ROMAN DANUBE FRONTIER ZONE

Contribution format: Oral  
Contribution authors: Regina Molitor (Leibniz-Zentrum für Archäologie (LEIZA))

The frontiers of the Roman Empire were not rigid barriers but dynamic spaces of cultural interaction, where societal coexistence was subject to diverse influences and required constant renegotiation. These frontiers not only served as contact zones between different cultures but also as arenas for the emergence of new social orders and power structures. This paper explores these dynamics by focusing on the frontier region of the late antique northern frontier of the Eastern Roman Empire. From the early fourth century onwards, a profound social transformation took place along the Lower Danube, a development that is particularly evident in the archaeological record through the increasing integration of weapon sets into grave goods assemblages. Contrary to traditional interpretations of these so-called “weapon graves,” which regard them as burials of migrating warriors who crossed the Danube and possibly served in Roman forces, recent archaeological investigations, supplemented by newly conducted aDNA analyses, suggest alternative explanations. These graves appear to reflect the archaeological manifestation of newly emerging local and temporary socio-political power structures, shaped within the specific framework of a frontier zone extending across both sides of the Lower Danube. Guided by the question of how these newly emerging social structures within the frontier zone can be archaeologically characterised, this paper aims not only to provide new perspectives on the dynamics and social transformation processes within this frontier zone through selected case studies but also to demonstrate how the frontier zone along the Lower Danube can be made archaeologically visible.

1061. PERIPHERAL CENTERS, CORE DEBATES. RETHINKING URBAN-RURAL INTERACTIONS IN CLASSIC MAYA SOCIETY

Contribution format: Oral  
Contribution authors: Jessica Munson (Lycoming College)

As an analytical category, frontiers have been conceived as rural and sparsely populated zones of human settlement and resource extraction. The inhabitants of frontier zones are thus portrayed as exploited and passive recipients of urban benevolence far removed from centers of power and cultural innovation. Recent studies of Classic Maya urbanism tend to reify this notion of the frontier by reducing low-density, rural settlements to hinterlands that were dependent upon or controlled by more populous and diverse urban centers. These frontier zones may have been the source of intense competition during the Late Classic period (ca. 600-800 CE) as powerful rulers sought to gain control of trade routes and access to valued commodities such as cacao and textiles, but rarely have archaeologists examined these frontier communities on their own accord. Moreover, the urban-rural framework in which these debates are embedded underscores dichotomous thinking that masks understanding variation within frontier landscapes. This paper examines settlement pattern data from the Upper Usumacinta Confluence Zone (UUCZ) as well as related architecture and ritual deposits from the site of Altar de Sacrificios, the primary center of ceremonial activity and socioeconomic interaction in this otherwise frontier region from the Late Preclassic (ca. 300 BCE) to the end of the Classic Maya period. Focusing on the occupation history and diachronic changes in public architecture and ritual activity, this paper traces the development of this small and atypical “paraurban” city whose strategic location and built environment offered varied opportunities for both local and long-distance interactions over its long history. Theoretically, this work challenges existing categorical frameworks by applying network perspectives to investigate interactions across the urban-rural interface and how those changed over time.

840. BORDERLANDS IN ANCIENT SOUTHERN ITALY. CULTURAL INTERACTIONS AMONG GREEKS, PEUCETIANS AND OENOTRIANS

Contribution format: Oral  
Contribution authors: Filippo Trotta (Università degli Studi di Bari - Dipartimento di Ricerca e Innovazione Umanistica) – Paolo Brocato (Università della Calabria - Dipartimento di Studi Umanistici) – Paola Palmentola (Università degli Studi di Bari - Dipartimento di Ricerca e Innovazione Umanistica) – Luciano Altomare (Università della Calabria - Dipartimento di Studi Umanistici) – Ginevra Coppola (Università degli Studi di Bari - Dipartimento di Ricerca e Innovazione Umanistica) – Roberto Ferretti (Independent) – Margherita Perri (Università della Calabria - Dipartimento di Studi Umanistici)

In the studies related to the Italic peoples, there is still a lack of contributions capable of providing an overall interpretation that highlights the historical-archaeological development of the Oenotrians and Peucetians cultures. Completely unexplored are the relationships established between both populations, a topic that requires a reconstruction focused on the border territories as the principal places of interaction between the two cultures. Although

archaeological research has often neglected border areas, considering them subordinate to central areas, many scholars have emphasized their significant role instead. For example, the Bradano District constitutes a territory open to multiple influences, just as the Vallo di Diano serves as a link between the Campanian-Villanovan and the Oenotrian, Lucanian, and Peucetian areas. In the northwest of Taranto, centers like Ginosa and Laterza seem to maintain a strong Peucetian connotation, while the territory of Castellaneta appears to undergo a clear process of Hellenization influenced by Taranto and Metaponto. This scenario outlines a heterogeneous situation in the border areas, which were subject to strong external influences, both indigenous and colonial. This paper presents the results of research focused on the comparison between Oenotrian and Peucetian cultures. Through the analysis of a multitude of archaeological phenomena and data, with particular attention to the peculiarities that characterize the numerous border settlements placed on both sides of the Bradano, we explore the contact between the two cultures, as well as the interaction with the neighboring Greek peoples settled in the Ionian arc.

340. COGNITIVE AND MATERIAL ASPECTS OF SARMATIAN–ROMAN RELATIONS IN THE FOREGROUND OF AQUINCUM (PANNONIA)

Contribution format: Oral  
Contribution authors: Tamás Szebenyi (University of Szeged Department of Archaeology, HU)

“Despite the distorted impressions conveyed by the antique written sources, the relationship of the Sarmatian communities and the Roman provinces of the Carpathian Basin were primarily peaceful during the nearly 400-year co-occupation along the Danube (between the 1st and 5th century AD). In the Great Hungarian Plain contact region, the greatest frequency of Roman artifacts occurs near the border zones of the ripa Pannonica where short distance trade (Grenzhandel) takes place. The recent analyses of the imported ceramic assemblage from Site Üllő 5–9 (Pest county, Northern Hungary) provides a unique opportunity with its 2971 items (3481 fragments) to study Barbarian–Roman trade relations. Although the discussed finds show an unparalleled level of heterogeneity (e.g. terra sigillata vessels, Dressel 24/Zeest 90 type amphorae, Glanztonware, lead-gazed pottery), even in the vicinity of the Pannonian limes, the presence of a strong local, Barbarian demand is clear: the ratio of coated tableware is 91,5% at Site Üllő 5–9, but it is only 1,6–8,2% in the production program of the nearby Pannonian workshops! On the other hand, the occurrence of foreign vessels from the Sarmatian culinary traditions (e.g. Roman imitations of Drag. 18/31 and 35/36 form plates) shows some degree of integration of provincial cultural elements. Furthermore, the abrasion marks on lead-glazed mortaria indicates their consistent functional use as kitchenware even in Sarmatian environment. The issue of the so called “red painted Sarmatian pottery” shows the embeddedness of Roman imported earthenware from another point of view. This vessel type clearly imitates the most popular terra sigillata forms among Sarmatians (Drag. 30, 37) and can be dated at the earliest to the declining import of Western luxury pottery (second half of the 3rd century).”

832. THE WEIGHT OF THE FRONTIER. ARCHAEOLOGICAL TRACES OF THE INTERACTION WITH THE MIGRATION BORDER IN LAMPEDUSA (ITALY)

Contribution format: Oral  
Contribution authors: Francesca Anichini (University of Pisa)

Lampedusa (Italy) is a small island in the heart of the southern Mediterranean. It has always been a strategic landing point and a military strategic outpost from the 20th century onwards. Its liminal condition defines some cultural characteristics, progressively shaped by continuous exchanges with North African (particularly Tunisian) and Sicilian cultures. Since the 1990s, Lampedusa has become a frontier, unwillingly incorporated into the geopolitical dynamics imposed by the Schengen Agreement and the concept of Fortress Europe. These dynamics have progressively reshaped European border protection policies. The island has entered the media spotlight, transforming into the “island of migration.” An archaeological investigation carried out between 2020 and 2024 has surveyed the material traces left by undocumented contemporary migrations and explored the complex relationship between the island, its inhabitants, and the phenomenon of migration. Through a series of archaeological-ethnographic fieldwork campaigns and surface surveys, researchers have catalogued and analysed objects arriving on the island, burial practices, and elements of public representation that reveal a complex interaction between residents, law enforcement and border control agencies, political actors, humanitarian workers, researchers, and people on the move. Stripped of the media spotlight on the island for years, the archaeological record becomes an eloquent and compelling witness, unveiling connections between the local and global dimensions. It opens up critical reflections on the frontier status as a determining factor both in the internal dynamics of the local community and concerning the influence of external elements and the management of intercultural interactions. The paper will provide a concise overview of the research, focusing on key elements that may offer insights in this direction.



2485. BREAKING TRADITIONS: SUDDEN CHANGE AND ABANDONMENT IN ARCHAEOLOGICAL LANDSCAPES SANCTI SPIRITUS, LOST AND FOUND

**Contribution format:** Oral  
**Contribution authors:** Iban Pinto – Sergio Escribano Rui – Agustín Azkarate Garai-Olaun (University of the Basque Country, Department of Geography, Prehistory and Archaeology)

In 2027, the 500th anniversary of the construction of Sancti Spiritus, the first European settlement built in the Southern Cone, will be commemorated. Although it was a milestone in the colonial history of the region, its significance did not lie in prolonged occupation, as it was destroyed and abandoned just two years later, in 1529. While it remains uncertain whether the 500th anniversary of its burning will be celebrated in 2029, this presentation will focus on the process of the fort’s destruction and abandonment. In this presentation, we will analyze two radical transformations within a single case study, shaped by two overlapping yet opposing spatial traditions in a contested landscape. The first transformation corresponds to the destruction of the indigenous settlement by Europeans to construct the fort. The second involves the subsequent destruction and abandonment of the fort itself and its associated structures. Drawing on more than a decade of historical and archaeological research, we will explore this dual process of remembrance and oblivion. Paradoxically, rather than fading into history, the memory of Sancti Spiritus endured until its rediscovery in the early 21st century. Today, the fort enters a new phase, one tied to the study and dissemination of its legacy.

162 TRACING LONG-TERM TRANSFORMATIONS: MULTISCALE METHODS FOR UNDERSTANDING PAST LANDSCAPES

**Session theme:** 3. Exploring methods in research, education and communication  
**Session format:** Regular session  
**Session keywords:** landscape , geoarchaeology, paleoecology, computational methods, paleo-environments, long-term dynamics  
**Session organisers:** Giacomo Vinci (University of Padova) – Filippo Brandolini (Massachusetts Institute of Technology | Università degli Studi di Milano) – Gabriel Servera-Vives (University of the Balearic Islands,) – Grant Snitker (New Mexico Consortium) – Sandra Garcés Pastor (University of Barcelona)

SESSION ABSTRACT

Archaeological research now leverages advanced computational tools —such as remote sensing, GIS spatial analyses, predictive modelling, and agent-based modelling— alongside traditional laboratory and fieldwork techniques. In parallel, integrated palaeoecological studies employ diverse disciplines and proxies to investigate landscape change across long timescales. These approaches encompass the analysis of pollen, non-pollen palynomorphs, sedimentology, geochemistry, charcoal, biomarkers, and sedimentary DNA. By integrating archaeological and palaeoecological data from on-site, site periphery (near-to-site), and off-site sequences, this session aims to provide insights into land use and land cover changes, revealing long-term landscape dynamics. Particular emphasis will be placed on changes in the structural and inherent characteristics of landscapes (geological, geomorphic, ecological, etc.) and the dynamic interactions between human communities and their environments. This approach will shed light on cycles of stability and change, as well as the historical trajectories of landscape evolution. To address these complex interactions, we draw upon a wide array of methodologies. This multi-scale, computationally enhanced approach not only aims to reconstruct past environments but also to propose sustainable land management practices today. By highlighting innovative methodologies and their practical applications, this session aims to advance research in environmental archaeology, historical ecology, and sustainable landscape management. We welcome methodological contributions and case studies that apply these techniques across varied regions, demonstrating the potential of combining multi-proxy techniques to reveal patterns in landscape transformation.

CONTRIBUTION ABSTRACTS

868. A GEOARCHAEOLOGICAL PERSPECTIVE ON RONDEL DITCH INFILL FORMATION AS A KEY TO UNRAVELING NEOLITHIC SETTLEMENT TRANSFORMATION AND LANDSCAPE DYNAMICS

**Contribution format:** Oral  
**Contribution authors:** Jaroslav Bartík – Katarína Adameková – Petr Škrdla (Institute of Archaeology of the Czech Academy of Sciences, Brno) – Peter Milo – Tomáš Tencer (Department of Archaeology and Museology, Fakulty of Arts, Masaryk University, Brno) – Jan Novák (Department of Botany, Faculty of Science, Charles University, Prague) – Šárka Hladilová (Department of

Geological Sciences, Faculty of Science, Masaryk University, Brno) – Jaromír Kovárník (Independent) – Martin Košťál (Department of Archaeology and Museology, Fakulty of Arts, Masaryk University, Brno)

The construction of circular ditch enclosures (rondels) is one of the most remarkable phenomena of the Central European Neolithic. In southwestern Moravia (eastern part of the Czech Republic), near the village of Mohelno (Třebíč District), three settlement areas with rondels were identified, each positioned on slight elevations above a small watercourse with distances varying from 600 to 800 m among themselves. While their presumed dating to the Lengyel culture (ca. 4900–4300 BC) was initially based on surface finds, their chronological framework is currently being refined within a multidisciplinary research project. This study integrates geoarchaeological approaches to analyze the infill deposits of rondel ditches as archives of prehistoric environmental conditions, anthropogenic activities, landscape dynamics and subsequent post-depositional processes over time. By combining soil micromorphology, sedimentology, geochemical and physico-chemical analyses, radiocarbon dating, and archaeobotanical methods, we investigate the depositional histories of rondel ‘s infills. By embedding this analysis within a broader landscape perspective, incorporating geophysical prospection and regional palaeoecological data, our research contributes to understanding transformations in Neolithic landscapes. This multi-proxy approach highlights the dynamic interactions between early farming communities and their environment, shedding light on patterns of settlement persistence, land cover changes, and site formation processes.

1696. HOLOCENE LAND COVER CHANGE IN THE PANNONIAN (EAST-CENTRAL EUROPE) FOREST STEPPE: THE ROLE OF PREHISTORIC LAND EXPLOITATION PHASES

**Contribution format:** Oral  
**Contribution authors:** Ilona Pál (ELTE Eötvös Loránd University, Department of Environmental and Landscape Geography) – Enikő Magyari (ELTE Eötvös Loránd University, Department of Environmental and Landscape Geography | HUN-REN-MTM-ELTE Research Group for Paleontology) – János Korponai (University of Public Service, Department of Aquatic Environmental Sciences) – Gábor Mesterházy (Hungarian National Museum, National Institute of Archaeology) – Ákos Bede-Fazekas (HUN-REN Centre for Ecological Research, Institute of Ecology and Botany | ELTE Eötvös Loránd University, Department of Environmental and Landscape Geography) – Gabriella Darabos – Gusztáv Jakab (ELTE Eötvös Loránd University, Department of Environmental and Landscape Geography) – András Füzesi (Hungarian National Museum, National Institute of Archaeology) – Pál Raczky (ELTE Eötvös Loránd University, Institute of Archaeological Sciences)

Pollen analytical studies of Holocene lake and mire sediments provide valuable information on past forest cover changes and help us resolving the long-debated origin of temperate forest steppes in Europe. Here we contribute to this debate via the pollen and multi-proxy palaeoecological (macrofossil, charcoal, major and trace element) analyses of a paleolake (Kokad Mire) situated in the temperate deciduous forest steppe zone of the Great Hungarian Plain (GHP). Diverse soil types and microhabitats in this area attracted arable farming communities since the Neolithic. By comparing the local archaeological record with the pollen-based land cover, vegetation composition and fire history changes, we analyze the climatic versus anthropogenic origin of the forest steppe vegetation, determine the ages of significant forest clearance episodes, and examine the relationship between paleo-proxy inferred land use and prehistoric/historic settlement density. Our results suggest that the current potential forest steppe vegetation of the eastern GHP had natural climatic and edaphic origin in the Early and Mid-Holocene, which was maintained by anthropogenic deforestation in the Late Holocene. Without human impact, forest cover should have increased likely since the Early Bronze Age. We found evidence for episodic land use during the Neolithic: Middle and early Late Neolithic (7600-7400 cal BP) coppice management and pastoral farming. Deforestation intensified from 3900 cal BP (during the Bronze Age). We demonstrated very early hemp (Cannabis sativa) cultivation between 5970–5450 cal BP (Middle Copper Age) likely attributable to eastern nomadic pastoral groups (pre-Yamnaya) who left behind several burial mounds in the region. We also showed that the lake was used for hemp retting between 2450–2000 cal BP by the local Celtic groups. The analysis of three pollen records from the GHP furthermore revealed that prehistoric cultures had different occupation intensities until the Late Bronze Age with localized forest clearances followed by afforestation.

1769. CAPTURING CHANGES - COMPLEX STUDIES AND COMPARATIVE ANALYSIS OF BARROW LANDSCAPE TRANSFORMATIONS IN THE PRECARPATHIAN AREA

**Contribution format:** Oral  
**Contribution authors:** Przemyslaw Makarowicz (Adam Mickiewicz University in Poznań) – Vitalii Rud (National Academy of Sciences of Ukraine, Kiiv) – Sorin Ignatescu (Stefan Cel Mare University of Suceava) – Ihor Kochkin (Vasyl Stefanyk Precarpathian National University



in Ivano-Frankivsk) – Vasyl Ilchyshyn (Kremenets-Pochaiv National Historical and Architectural Museum) – Krzysztof Michalczewski (Adam Mickiewicz University in Poznań) – Paweł Jarosz (Polish Academy of Sciences, Kraków) – Witold Szambelan (Adam Mickiewicz University in Poznań) – Bogdan Niculica (National Museum of Bukovina in Suceava) – Jan Romaniszyn (Adam Mickiewicz University in Poznań)

International teams have been studying barrow cemeteries in the Precarpathian area, specifically southwest-ern Ukraine and northeastern Romania, for nearly 15 years. In the Early and Middle Bronze Ages, this area was settled by communities that built barrows. These objects formed cemeteries that can span several kilometers, creating a network of barrow complexes, defined as a larger structures – barrow landscapes. Based on the knowl-edge gained during this research, it is known that these necropolises were built over extended periods of time by representatives of various successive cultural groups (the Yamna culture at the turn of the 4th and 3rd millennia BC, the Corded Ware culture in the 3rd millennium BC, and the Komarów culture in the 2nd millennium BC). Each of these periods was revolutionary in terms of funeral rites and brought new specificities to these spaces. Here, scholars from independent research teams have collaborated to compare their data from recent years. The main goal of this presentation is to conduct a comprehensive comparative analysis between the clusters of stud-ied barrow cemeteries in the Upper Dniester Area in Ukraine and the Interfluve of the Suceava and Siret Rivers in Romania. The results indicate that certain similarities, differences, and changes occurred over thousands of years in the Precarpathian barrow landscape and captured the chronological and spatial dynamics of these transformations. A wide spectrum of advanced multidisciplinary methods were used to analyze the trends (e.g. differences in funeral rituals or dietary practices) of these communities and radiocarbon analysis precisely placed these phenomena within an absolute chronology. This comparative analysis has revealed the main directions of the origin of the “Kurganization” phenomenon, and also proves that Precarpathia played an important role as a crucial area of contact between the steppe migrants and local communities.

**1963. THE ADANCATA-IMAS BARROW CEMETERY (NORTH-EASTERN ROMANIA) – CHRONOLOGICAL, SPATIAL AND CULTURAL CHANGES IN THE LIGHT OF MULTIDISCIPLINARY METHODS**

**Contribution format:** Oral  
**Contribution authors:** Bogdan Niculica (National Museum of Bukovina in Suceava) – Jan Romaniszyn (Adam Mickiewicz University in Poznań) – Sorin Ignatescu – Vasile Budui (Stefan Cel Mare University of Suceava) – Angela Simalscik (Orheiul Vechi Cultural-Natural Reserve, Republic of Moldova | Olga Necrasov Centre of Anthropological Research, Romanian Academy) – Krzysztof Michalczewski (Adam Mickiewicz University in Poznań) – Sebastian Teska (Independent) – Paweł Jarosz (Polish Academy of Sciences, Kraków) – Bartosz Żarkowski – Przemysław Makarowicz (Adam Mickiewicz University in Poznań)

Multidisciplinary methods provide previously unknown information and expand existing knowledge about the funeral rites of prehistoric communities. This also applies to barrow cemeteries, which form long chains of mounds, creating so-called ‘barrow or funerary landscapes’. The application of a multidisciplinary set of meth-ods is even more effective in areas where non-invasive methods can be confronted with excavations, as well as in regions that have not previously been explored on a large scale. The site in Adancata-Imas is an example of a necropolis where the history of barrow communities from the 3rd and 2nd millennium BC has been recorded. Within this cemetery, barrows with a complex chronology are associated with different stages of the broadly understood ‘Kurganization’ process. Despite adapting the existing funeral space, successive populations were characterized by diverse funeral rituals which are documented under the mounds. The aim of this presentation is to show the details of the transformation of the barrow landscape and ritual behaviors over time thanks to recent excavations and a spectrum of multidisciplinary methods. The Adancata necropolis has been archaeo-logically recognized for nearly 15 years. Thanks to several excavation seasons, the application of non-invasive methods (LIDAR scanning, GPR prospection, and magnetometry), palaeo-studies. and anthropological analysis, it was possible to generate greater insight into the funeral rites of the communities who used the cemetery. The new radiocarbon dates obtained also placed the Adancata-Imas site within an absolute chronology and confirmed the long-term usage of this place. The data currently obtained from Adancata-Imas represent a scientific bench-mark for this area and indicate the directions of future research of barrow landscapes in this part of Europe.

**1877. THE STORY OF AN ENCLOSED EARLY BRONZE AGE SETTLEMENT IN PLOTIŠŤĚ NAD LABEM (BOHEMIA) FROM THE GEOARCHAEOLOGICAL AND PALEOENVIRONMENTAL PERSPECTIVE**

**Contribution format:** Oral  
**Contribution authors:** Michaela Kosová (Institute of Archaeology of the Czech Academy of Sciences, Prague) – Katarína Adameková (Institute of Archaeology of the Czech Academy of Sciences, Prague | Institute of Archaeology Czech Acad Sci, Brno) – Eva Schimerová (University

of Hradec Králové) – Jarmila Bíšková (Institute of Archaeology of the Czech Academy of Sciences, Prague | Masaryk University) – René Kyselý – Petr Kočár – Vít Vokolek (Institute of Archaeology of the Czech Academy of Sciences, Prague)

In the early 1970s, excavations in Platiště nad Labem (Eastern Bohemia) revealed a unique Early Bronze Age settlement enclosed by a massive ditch with a flat bottom. This site remains the only known fortified site from the Early Bronze Age in the entire region of Eastern Bohemia. Based on the structure of the surrounding settlement network, it is evident that this site served as a central hub for the entire region. However, despite its key signif-icance, the site has neither been thoroughly analyzed nor published. In 2023, a revision excavation of the ditch was conducted to reevaluate its stratigraphy using modern geoarchaeological and interdisciplinary methods to better understand its function, chronology, and relationship with the surrounding landscape. Even today, the ditch reaches a depth of nearly 4 meters and a width of 10 meters. Its well-preserved state allowed for the collec-tion of samples not only from horizons dated to the Early Bronze Age but also from layers associated with periods following the decline of the fortifications, up until the ditch was filled in during the La Tène period. Samples from individual ditch horizons included micromorphological, geochemical, grain-size, total organic carbon, magnetic susceptibility, malacological, archaeozoological, and botanical analyses. The chronology of individual horizons is further refined by numerous radiocarbon and optically stimulated luminescence dates. By combining these methods, along with traditional archaeological ones, this contribution provides a more precise understanding of the construction and lifespan of the fortification and its role in regional social dynamics. Additionally, it offers valuable insights into ecological conditions of the site and its surroundings from the Early Bronze Age to the La Tène period.

**2329. PALAEOGEOGRAPHY AND BIOCLIMATIC CHANGES AT THE IBERIAN MEDITERRANEAN REGION (SPAIN): COVES DE SANTA MAIRA (22 – 10 KA CALBP)**

**Contribution format:** Oral  
**Contribution authors:** Vanessa Extrem-Membrado (PREMEDOC, Departament de Prehistòria, Arqueologia i H. Antiga, Universitat de València) – Salvador Pardo-Gordó (GISPRAYA Research Group, Departamento de Geografía e Historia, Universidad de La Laguna) – C. Michael Barton (School of Complex Adaptive Systems, Arizona State University | School of Human Evolution and Social Change, Arizona State University) – Adolfo Maestro González (GI-GEOFSUB Research Group, Departamento de Geología y Geofísica. C.N. IGME-CSIC) – Yolanda Carrión Marco (PREMEDOC, Departament de Prehistòria, Arqueologia i H. Antiga, Universitat de València) – Jesús F. Jordá Pardo (Departamento de Prehistoria y Arqueología, Universidad Nacional de Educación a Distancia (UNED)) – J. Emili Aura Tortosa (PREMEDOC, Departament de Prehistòria, Arqueologia i H. Antiga, Universitat de València)

In recent years, the use of GIS tools and models to reconstruct paleoclimate and paleoecology has become popular. These models have made it possible to understand the areas of distribution of plant resources and the palaeoen-vironmental changes caused by climatic fluctuations. Nevertheless, these models are built from an ecological niche that provides reconstructions at large temporal and spatial scales. But these reconstructions could gener-ate a low ecological and geographical resolution for small study areas, that, perhaps, do not reflect the reality of the available data from the sites. This is the case when comparing pollen and charcoal sequences or for the emerging lands due to the change in the coastline. In the Valencia Region (Spain), climatic and palaeoenviron-mental fluctuations associated with the transition between the Pleistocene and the early Holocene have been recorded, which generated important ecological and geographical changes that conditioned the life and interac-tions of hunter-gatherer-fisher groups. Archaeobotanical studies at some sites in the region may show possible discrepancies with the regional pollen data. This problem has been highlighted at Coves de Santa Maira, where no pollen sequence is available. This communication aims to investigate palaeoclimatic and palaeoenvironmen-tal changes at a specific site of the Valencia region, the Coves de Santa Maira site. We will use the GIS tools to compare pollen data and plant macroremains recovered from the Coves de Santa Maira. We intend to compare and understand the differences between pollen and charcoal, and to observe the possible variations that can be detected on a small scale in a mountainous environment between the fluctuations of the last Pleistocene to the early Holocene. Finally, the results will be compared with the Valencia region, including the coastal environ-ment and the emerging land areas.



823. FROM POLLEN TO PIXELS: ADVANCING GEOSPATIAL VEGETATION RECONSTRUCTION METHODS TO UNDERSTAND THE CHANGING LANDSCAPES OF SOUTHEASTERN AUSTRALIA

**Contribution format:** Oral  
**Contribution authors:** Alastair Wills – Michela Mariani – Barry Lomax – Matthew Kent (University of Nottingham) – Martin Theuerkauf (University of Greifswald) – Simon Connor (Australian National University) – Haidee Cadd (University of Wollongong) – Annika Herbert – Janelle Stevenson (Australian National University) – Peter Kershaw (Monash University)

Pollen counts are essential proxies for reconstructing past vegetation cover and understanding landscape evolution. Sugita’s Landscape Reconstruction Algorithm (LRA) has provided a method for palynologists to quantify past vegetation at the taxon level by correcting for pollen production, dispersal, and deposition biases. While the LRA provides reliable vegetation reconstructions, its assumption of vegetation pattern uniformity limits its ability to spatially define past vegetation patterns within a reconstructed area. In reality, landscapes are often highly structured, with vegetation distributed in distinct patches rather than evenly across a region. For example, in mosaic landscapes where forests are interspersed with open grasslands or where cultural landscapes have been shaped through Indigenous land management, the assumption of homogeneity does not hold. Consequently, LRA reconstructions may struggle to accurately represent past vegetation in such heterogeneous environments. Alternative approaches to the LRA methodology, such as the Multiple Scenario Approach and the Extended Downscaling Approach (EDA) address this limitation by introducing underlying landscape patterns and optimisation approaches into the reconstruction process, enabling more realistic and fine-scale geospatial vegetation reconstructions. Herein, we validate the EDA model which has not yet been applied in an Australian or the Southern-Hemispheric context. Our approach involves inputting modern pollen records and modern vegetation distribution datasets to reconstruct modern vegetation cover from the EDA which, are then validated against ground-surveyed vegetation cover. We find the EDA model is flexible, working across spatial scales ranging from extra-local (~10km radius from pollen sites) to regional, including topographically complex landscapes, such as those of Western Tasmania. These initial findings highlight the potential of the EDA to uncover the interplay between vegetation patterns driven by climate and those shaped by past Indigenous cultural land management practices. This provides a novel spatio-temporal method of understanding southeastern Australian vegetation cover change throughout the Holocene.

838. THE HUMAN HISTORY IN THE RAINFORESTS OF THE GUIANA SHIELD

**Contribution format:** Oral  
**Contribution authors:** Chendi Wang – Yujia Shi – Crystal Mcmichael (Institute for Biodiversity and Ecosystem Dynamics, University of Amsterdam) – Martijn Van Den Bel (INRAP, French Guiana.) – Nina Witteveen (Forest Ecology and Management Group, Wageningen University)

The Guiana Shield is a part of the Amazon rainforest that is characterized by relatively isolated rainforests. Compared to other Amazonian regions, little is known about the past/first inhabitants of the region. While it is hypothesized that Indigenous populations were small-scaled, the discovery of ring ditches and human-modified soils suggests intensive forest management from thriving populations in some forests. To shed light on past land use in The Guiana Shield, and the cultural heritage of Indigenous People, we investigated and compared the vegetation and fire history of two settlements in French Guiana and Suriname. To reconstruct the vegetation history of the last 1500 years, phytoliths were studied, which are silica microfossils that remain in the soils after plants decay. Charcoal has been analysed to assess the fire history. Preliminary results show people inhabited these forests during the pre-Columbian and post-colonial period, indicated by charcoal from past forest fires. Phytolith studies show that the abundance of palm species is positively correlated with human disturbances, especially for those with edible fruits. This study deepened our understanding of the historical practices of Indigenous People and their environmental interactions. Our findings highlight the long-standing and unique human-environment interactions in these remote, tropical forests of the Guiana Shield and future sustainable development.

1622. BEYOND THE CITY WALLS: A FIRST APPROACH TO THE IMPLEMENTATION OF THE ROMAN OCCUPATION MODEL IN THE NORTH-EASTERN IBERIAN PENINSULA

**Contribution format:** Oral  
**Contribution authors:** Sònia Salvia Vidal – Esther Rodrigo Requena (Universitat Autònoma de Barcelona (UAB))

In the north-east of the Iberian Peninsula, apart from Tarraco and Emporion, one of the oldest cities was the urban settlement of Iesso (Guissona, Catalonia), founded in 120 BC. With more than 30 years of research, this Roman town has become a reference point in Catalan archaeology. Despite all the archaeological interventions that have been carried out, the information concerning the earliest moments of Iesso is still partial and fragmentary. Therefore, it is necessary to achieve a more complete understanding of its development through a holistic research approach, combining the study of its initial urbanism with the occupation and management of the

landscape surrounding the town, the ager Iessonensis. In addition, the indigenous factor will be included in the analysis effectuated, taking into account the sites of pre-Roman societies in the territory. This project requires a solid methodology that allows the interpretation of the results generated by computational studies applied to the archaeological data. It will be managed by a relational geodatabase which will make possible to execute analysis from a micro scale, analysing the construction techniques of each structural unit of the buildings in the whole study area, to a macro scale, carrying out a chronotypological classification of the archaeological sites in the ager and the town. To summarize, the aim of this communication is to present the results of a first phase of research which has begun with the georeferencing and digitisation of all the structures in the territory of Iesso. Once this methodology has been applied to the ager, it will be easier to export this level of analysis to the urban context. Finally, the results will facilitate the observation of influences and transformations in these centuries of hybridisation between Iberian and Roman cultures and the implementation of the Roman model.

548. THE USEFULNESS OF ARCHAEOPALYNOLOGICAL DATA FOR THE STUDY OF PLANT BIODIVERSITY: FROM BRAIN TO THE LIFEWATCH ITALY DATA PORTAL

**Contribution format:** Poster  
**Contribution authors:** Jessica Zappa (Laboratorio di Palinologia e Paleobotanica, Università degli Studi di Modena e Reggio Emilia) – Ilaria Rosati – Andrea Tarallo (Consiglio Nazionale delle Ricerche, Istituto di Ricerca sugli Ecosistemi Terrestri) – Eleonora Clò – Cristina Ricucci – Lorenzo Braga – Anna Maria Mercuri – Assunta Florenzano (Laboratorio di Palinologia e Paleobotanica, Università degli Studi di Modena e Reggio Emilia)

The landscape sees plant biodiversity as one of its most important features. The archaeobotanical study of pollen from archaeological contexts has proven to be one of the most valuable approaches for the understanding of the landscape structure (e.g., land cover type) and evolution (diachronic transformations under human impact and environmental factors) based on detailed morphological analysis and careful interdisciplinary interpretation. In Italy, the large amount of archaeobotanical studies in the different regions and for Holocene chronologies has been collected in the BRAIN database which, by the end of 2024, includes metadata of about 900 sites and 1000 bibliographic citations (Mercuri et al. 2024: Holocene archaeo-data for assessing plant-cultural diversity in Italy and other Mediterranean region. Scientific Data 11, 520; <https://brainplants.successoterra.net/>). Notably, palynological data offer considerable detail that is relevant in archaeological, conservation and ecological research fields. For this reason, the floristic lists – which in BRAIN are linked to archaeological sites – have been structured and harmonised to be published in a dedicated sub-portal hosted in the LifeWatch Italy Data Portal, a resource for managing and sharing biodiversity and ecosystem data following the principles of Findability, Accessibility, Interoperability and Reusability. The LifeWatch Italy Data Portal exposes data and metadata using worldwide accepted standards (DarwinCore, EML 2.2.0 schema), facilitating further reuse of the BRAIN database. The BRAIN diachronic floristic lists support the scientific community of archaeologists and scholars involved in biodiversity and ecosystem research to monitor changes in the composition of the local flora and to reconstruct the mid- and late Holocene plants dynamics under anthropic and natural pressure. Changes in vegetation cover clearly testify to the millennia of human activities that transformed natural into cultural landscapes in which we live and which we are asked to preserve.

1275. AS FAR AS THE HUMAN EYE CAN SEE! GIS VISIBILITY TOOLS AND LATE BRONZE AGE SETTLEMENTS IN SOUTHERN ALENTEJO (PORTUGAL)

**Contribution format:** Poster  
**Contribution authors:** António Diniz (Universidade de Évora, CHAIA, IN2PAST | Universidade de Évora, CIDEHUS) – Miguel Serra (Câmara Municipal de Serpa | University of Coimbra, CEAACP) – Nelson Almeida (Universidade de Évora, CHAIA, IN2PAST | UNIARQ – University of Lisbon) – Enrique Cuenca (Complutense University of Madrid)

The Bronze Age in the Interior Alentejo region (South Portugal) has been the focus of attention since several casual discoveries at the end of the 19th century, followed by occasional but important surveys during the 40s to 60s of the last century and some research projects after the 80s until today. The research problems were exacerbated by the construction of the Alqueva Dam Project, which was associated with a large number of rescue archaeology works and many new data, which generated a great deal of scientific production as a way of preserving information. It is in this context that the present study is set, focusing on the ways in which Late Bronze Age sites are implanted between the territories of Beja and Serpa, a region separated by the course of the Guadiana River. From a spatial point of view, the question arises of a possible relationship between fortified and unfortified high-altitude and open lowland settlements. Through Geographic Information Systems and visibility tools, we aim to characterise possible correlations between the sites identified and frame these results in the settlement patterns discussion of Late Bronze Age inland Portugal.



1695. WOODLAND COMPOSITION AND UTILIZATION DURING THE NEOLITHIC, COPPER, AND BRONZE AGES IN THE GREAT HUNGARIAN PLAIN, EAST-CENTRAL EUROPE

**Contribution format:** Poster  
**Contribution authors:** Gabriella Darabos (ELTE Eötvös Loránd University, Department of Environmental and Landscape Geography) – Máté Merkl (ELTE Eötvös Loránd University, Department of Environmental and Landscape Geography | Kuny Domokos Museum) – Pál Raczky (ELTE Eötvös Loránd University, Institute of Archaeological Sciences) – András Füzesy (Hungarian National Museum) – Attila Gyucha (University of Georgia, Department of Anthropology) – Szilvia Fábián (Hungarian National Museum) – Tamás Hajdu (ELTE Eötvös Loránd University, Department of Biological Anthropology) – Gábor Csüllög – Ilona Pál (ELTE Eötvös Loránd University, Department of Environmental and Landscape Geography) – Enikő Magyari (ELTE Eötvös Loránd University, Department of Environmental and Landscape Geography | HUN-REN-MTM-ELTE Research Group for Paleontology)

This study investigates the floodplain woodlands and forest steppe of the Great Hungarian Plain (GHP) during prehistoric times, revealing insights into their exploitation and ecological dynamics from ca. 6000 cal BC. Previous research primarily relied on pollen records, leading to a limited understanding of the species composition. To solve this, systematic anthracological analysis was conducted on key archaeological sites spanning the Middle and Late Neolithic, as well as the Copper Age and Middle Bronze Age. The analysis focused on large volume bulk materials from long-term deposits, supplemented by pollen studies. The findings indicate that oak (*Quercus sp.*) was dominant in the region, utilized for construction and fuel. Notably, elm (*Ulmus sp.*) species were prevalent in the charcoal assemblages, particularly in the southeast GHP, where their frequency declined during the Early Chalcolithic period, suggesting a climate change or pathogen-induced decline. Compared to the lowland piedmont surface of the North Hungarian Range and the valley system of the mountains, the southeastern part of the GHP seems to be much less dominated by Ulmus and more by ash (*Fraxinus sp.*), and hornbeam (*Carpinus*) appears in charcoal assemblages from the Copper Age onwards. The study highlights significant ecological differences between the Neolithic forests of the GHP and modern Central and Eastern European steppe forests. The Cornelian cherry (*Cornus mas*) was consistently present, contributing to a distinct sub-Mediterranean-continental forest character. Additionally, discrepancies between hazel (*Corylus sp.*) representation in the pollen and charcoal records point to its potential over-representation in the pollen data. The findings underscore the GHP’s role as a vital environmental barrier, characterized by diverse ecosystems that prehistoric communities had to navigate and adapt to.

163 MAGISTERIA MINERVAE: CRAFTS AND CRAFTWORKING IN THE ROMAN MILITARY

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** Roman archaeology, Roman army, Crafts  
**Session organisers:** Jason Lundock (Full Sail University) – Dajana Ehlers (Independent) – Radoslaw Karasiewicz-Szczypiorski (Polish Centre of Mediterranean Archaeology, University of Warsaw) – Ljubomir Jevtović (Institute of Archaeology, Belgrade)

SESSION ABSTRACT

This panels seeks to explore the daily lived experience of those who in and around Roman military settings through the making, use and disposal of crafts and artisan products. By examining products such as ceramics, textiles, woodworking and stone, it is possible to build a wider picture of the daily life of the soldiers, settlers and traders who formed the military communities across the empire and develop a greater appreciation of the multiplicity of activities involved in these settings. Whether for practical use or for amusement, craftworking would have played an essential role in the lives of all who called Roman military stations home and our examination of these practices within a military environment will help us develop a greater understanding of these communities as a whole. We seek papers that engage with theoretical as well as practical approaches to understanding the place of crafts within the lived experience of those who resided within, around and engaged with Roman military installations. Broad analyses of topics within craftworking as well as sites specific case studies shall be welcome contributions to this panel and its discussion.

CONTRIBUTION ABSTRACTS

56. CRAFTING THE PERFECT FIT: THE ART OF TAILORING ROMAN MAIL AND SCALE ARMOUR

**Contribution format:** Oral  
**Contribution authors:** Martijn Wijnhoven (Institute of Archaeology of the Czech Academy of Sciences, Brno)

The Roman army, with its vast size, relied on hundreds of thousands of pieces of armour to protect its soldiers. These were not merely mass-produced, they demanded considerable skill to tailor them to the human body. This paper explores the techniques employed by Roman craftsmen to adapt mail and scale armour to the contours and movements of the wearer, showcasing their ingenuity and craftsmanship. Through a systematic analysis of hundreds of archaeological finds, this study examines the balance between form and function in Roman armour design. By applying the concept of chaîne opératoire, it reconstructs the decision-making processes of Roman armourers, shedding light on the methods and considerations that shaped their work. Set within the context of military communities, this exploration offers insights into the minds of the craftsmen who created and maintained these vital tools of war. It highlights their role in ensuring the functionality and adaptability of armour. Ultimately, this presentation positions Roman armour not only as a utilitarian object but also as a testament to skilled artisanship and innovative problem-solving within the Roman Empire.

163. WEAPNRY IN GRAVES FROM THE ROMAN PERIOD (1ST-3RD C. AD). THE CASE OF PROVINCE OF THRACE

**Contribution format:** Oral  
**Contribution authors:** Kaloyan Pramatarov (National Archaeological Institute with Museum at the Bulgarian Academy of Sciences)

Throughout the Roman Empire, weapons placed in the burial context were perceived as a mark of social status and associated with males who had died at a mature age (soldiers/military administrators/veterans). Indeed, the weaponry represents a common category of objects deposited within the burial facilities in the mound necropolises in Thrace. As it concerns the latter, the graves with weapons are typical for the period in the middle of the 1st to the 3rd c. They are located in the plain regions of the province, along the main thoroughfares and in the outskirts of major cities, and relatively rarely (2nd – 3rd c.) in the mountainous areas which were characterized by strategic location and metallurgical activity during the Roman Period (the Rhodopes, Strandzha, and the area of Tran). The present report provides an overview of the finds, emphasizing the phenomenon of rich graves and the combination of weaponry with medical instruments and writing implements.

1985. CRAFTS ON THE ROMAN BORDER: UNDERSTANDING DAILY LIFE THROUGH GRAVE GOODS FROM THE CROATIAN SECTION OF THE LIMES

**Contribution format:** Oral  
**Contribution authors:** Petra Grizelj (Faculty of Humanities and Social Sciences, University of Zagreb) – Tino Leleković (Croatian Academy of Sciences and Arts)

Over the past twenty years, there has been a breakthrough in the research and understanding of the Croatian section of the Limes. Geophysical surveys and archaeological excavations have uncovered a previously unknown landscape, significantly altering perspectives on the Roman Empire’s border in Croatia. Research has mainly concentrated on geophysical surveys and trial excavations, rendering finds from settlements and fortifications relatively uncommon. Nevertheless, some contextual discoveries offer insights that connect numerous accidental finds deposited in museums to structures gradually emerging along the banks of the Danube. The most significant quantity of utilitarian artifacts originated from excavating Roman cemeteries along the limes. Investigations in Batina, Beli Manastir, Zmajevac, and Sotin have uncovered nearly 300 graves, providing valuable insights into the daily lives of the people who once inhabited the area. In accordance with contemporary customs, the graves include artisans’ objects attesting to the lives and activities of communities along the Danube in Pannonia. The lecture will highlight several significant contexts and artifacts that facilitate the reconstruction of burial rituals and offer a deeper understanding of the daily lives of the inhabitants of settlements along the Roman limes. By examining the craft-working tools in funerary contexts, we can gain deeper understanding of the role of crafts and artisans in the lives of those who lived on the empire’s frontier.

779. AMPHORA KILNS IN THE ROMAN FORT IN APSAROS

**Contribution format:** Oral  
**Contribution authors:** Natalia Lockley (Polish Centre of Mediterranean Archaeology, Univerisity of Warsaw) – Marcin Matera (Faculty of Archaeology, University of Warsaw)



The ceramic production on the territory of the Gonio-Apsaros site was first documented by Georgian archaeologists. They found a ceramic kiln in the south-western corner of the Roman fort in 1997 and dated it to the 2nd–3rd centuries. They identified it as an amphora kiln. In 2023–2024, a Polish-Georgian expedition discovered four more ceramic kilns in the same area. Three of them should be dated to the period preceding the construction of the principia in Trajan’s time. The fourth kiln was a later construction, as evidenced by the fact that it partially destroyed the western wall of the Justinian basilica’s narthex. Remains of defected amphorae were discovered in two kilns. The identical construction of the other two furnaces allows us to assume that they were also used to produce amphorae. The discoveries from Apasaros shed new light on the controversial issue of the location of production of the so-called Colchian amphorae. This problem has been the subject of lively scientific discussion for over half a century.

512. PRODUCTION OF BUILDING CERAMICS BY THE ROMAN GARRISON AT TYRAS (BILHOROD-DNISTROVSKYI, UKRAINE)

**Contribution format:** Oral  
**Contribution authors:** Radosław Karasiewicz-Szczypiorski (Polish Centre of Mediterranean Archaeology, University of Warsaw) – Oleh Saveliev (Institute of Archaeology, National Academy of Science of Ukraine) – Małgorzata Daszkiewicz (Institut für Prähistorische Archäologie, Freie Universität Berlin | ARCHEA, Warszawa)

In the first centuries AD, a Roman garrison was stationed in the Greek city of Tyras, located at the mouth of the Dniester to the Black Sea. It was a detachment (vexillatio) made up of officers and soldiers drawn from various units of the exercitus Moesiae Inferioris (Lower Moesia army). The composition of this garrison changed and one important source for the study of the chronology and periodisation of the Roman military presence in Tyras are the stamps of the military units imprinted on bricks and tiles. However, the on-site production of these stamped building ceramics has not yet been established. A Polish-Ukrainian expedition, co-directed by the authors, collected samples of stamped bricks and roof tiles from excavations at Tyras and also collected clay samples from Tyras, its vicinity, and other Roman military sites in Moesia Inferior. Provenance analyses of the mentioned samples were carried out to establish the geochemical characteristics of both the plastic and non-plastic components of each ceramic sample, and to specify their matrix type and non-plastic particles. Analyses consisted of MGR-analysis and chemical analysis by WD-XRF. Clayey raw materials apart from the analysis of the chemical composition, were als. subjected to a firing test. The analysis results were compared with the available database. The results of the physicochemical analyses have significantly enriched our understanding of the production and distribution of building materials by Roman garrisons deployed along the Black Sea coast, from the Danube delta to southwestern Crimea.

2376. PIERCING THE SHROUD – THE HANDS BEHIND THE CBM PRODUCTION IN VIMINACIUM (MOESIA SUPERIOR)

**Contribution format:** Oral  
**Contribution authors:** Ljubomir Jevtovic – Ivan Bogdanović (Institute of Archaeology, Belgrade)

CBM production was one of the major industries of the Roman Empire, employing thousands of workers. Still, very few papers examine the people behind this. Viminacium was home to the largest military production on the territory of Moesia Superior. Thus far, more than 15 kilns have been uncovered, as well as many thousands of CBM. Still, even these numerous finds provide little information about the people producing brick and tiles. In an attempt to pierce this veil, we will examine all relevant sources of information. The analysis will include general CBM production, with a special focus on Viminacium, trying to understand the process and its difficulties from the perspective of workers and managers. Following, we will examine all the relevant CBM, analyzing it for any trace of information about its makers. Finally, we will examine the usage of this material and especially its misuse. All in an attempt to gather insight into the lives of soldiers producing CBM.

930. CHRONOLOGICAL STUDY OF TERRA SIGILLATA FROM A MINING METALLURGICAL SITE: THE CERRO DE LOS ALMADENES (OTERO DE HERREROS, SEGOVIA)

**Contribution format:** Poster  
**Contribution authors:** Ainhoa Fernández Tudela (Universidad Complutense de Madrid) – Carlos Morato-Marqués (Asociación para la Difusión de la Arqueología y la Minería)

The Cerro de los Almadenes (Otero de Herreros, Segovia) is a mining and metallurgical site specialized in copper production. Investigated since 2009, its areas of exploitation, settlement, control, and administration of mining and metallurgical activities have been identified, with a broad chronology spanning various periods from prehistory to late antiquity, notably the Roman (2nd/1st century BC – 3rd century AD) and Visigothic (6th-7th century AD) eras. Recently, studies have focused on the upper part of the hill, where a main structure with military

characteristics, interpreted as a Roman castellum, has been identified. This structure likely played a key role in organizing and supervising the mining and metallurgical activities of the settlement. Among the most notable findings is a large quantity of terra sigillata fragments, reflecting strong connections with the commercial networks of the Roman Empire. The numerous potter’s marks (sigilla) identified on these materials provide valuable information about the production workshops and their distribution, with particular links to the military world. This study analyzes the ceramic typologies documented in recent campaigns, in relation to production centers and trade routes that supplied this mining and metallurgical enclave within the Hispano-Roman economic, social, and cultural system. It also evaluates the role of terra sigillata as an element of Romanization.

164 A MOUNTAIN OF ECONOMIES: TRANSDISCIPLINARY PERSPECTIVES ON MOUNTAIN ECONOMIES AND LANDSCAPE TRANSFORMATIONS FROM PREHISTORY TO CONTEMPORARY AGE

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Regular session  
**Session keywords:** Mountain economies, Landscape transformation, Mountain archaeology, Environmental archaeology  
**Session organisers:** Salvatore Basile (Pisa University) – Francesco Carrer (Newcastle University) – Francesca Anichini (Pisa University)

SESSION ABSTRACT

Mountain landscapes are dynamic, layered records-palimpsests, shaped by centuries of humans/non-humans interaction. Though many European mountainous regions now experience socio-economic marginalisation, leading to ecological shifts, these areas were once thriving economic hubs. The material traces of these past activities—whether in the form of pastures, chestnut groves, charcoal kilns, terraced fields, farmsteads or quarries— remain imprinted on the landscape, highlighting how people and environments have changed over time, shaping unique cultural landscapes informed by local socio-economic structures and environmental conditions. However, these traces are slowly fading, with only fragments of them lingering in landscapes and local communities’ collective memory. Analysing these evidence is essential to understanding the role of these activities in marking past and present mountain landscapes. This session invites papers that investigate the economies of mountainous regions. We encourage contributions that explore how highland practices - such as pasturing, agriculture, forest management, extraction industries etc. - contributed to local and regional economies, and how these practices were intertwined with broader socio-economic networks, including those of lowland areas and urban centres. We welcome transdisciplinary studies that promote a deeper understanding of how economic strategies have shaped both landscapes and livelihoods of local communities and whether elements of these processes may still be discernible today. Given the complexity of this topic, which involves a wide array of interconnected aspects, contributions that combine diverse methods and approaches, including methodological experimentations will be most welcome. We welcome contributions from any period or geographical context that address the following themes. -Economic activities and their impact on mountain landscapes. -Theoretical and methodological approaches to studying mountain landscapes and economies. -The relationship between mountain economies and lowland or urban economic systems. -The impact of past economies and their remnants on present-day mountain communities. Through these discussions, we aim to identify the future challenges facing mountain archaeology.

CONTRIBUTION ABSTRACTS

1161. A MOUNTAIN OF CONNECTIONS: PASTORAL SETTLEMENTS AND ROUTES IN PRE-ROMAN AND ROMAN ABRUZZO: A TRANSDISCIPLINARY APPROACH

**Contribution format:** Oral  
**Contribution authors:** Elena Scarsella (Barcelona Supercomputing Center (BSC)) – Francesca Romana Del Fattore (Newcastle University)

Transhumance is undoubtedly one of the economic activities that has contributed the most in shaping the mountainous hinterland of the Mediterranean basin over the centuries and, to some extent, it still does. Since prehistory, the seasonal movements of flocks and the long evolution of transhumance in southern Europe have given rise to pastoral landscapes characterised by unique ecosystems and networks of roads linking pastoral sites. An analysis of the origins of Mediterranean mountain pastoral landscapes is therefore crucial in understanding the



emergence and impact of transhumance in socio-economic and cultural terms, as well as the close link over time between mountains and plains. The mountainous hinterland of Abruzzo, between the ancient Sabina and Samnium, the heart of the central-southern Apennine chain, represents an excellent study area. Here, already in the Republican era, there is historical evidence of the movement of flocks over long distances, from the high pastures to the Apulian Tavoliere. However, Rome imposed its control on an already structured (although fragmented) system, reorganising it by defining a bureaucratic and fiscal system, as attested by epigraphic and literary sources. Two closely related Marie Curie projects – E-TransAp: Early Intensive Pastoralism and Transhumance in the Apennines; PaTHS: Pastoral Tracks Heading South: The evolution of droveways (tratturi) in central-southern Italy – aim to investigate the origin and evolution of transhumant pastoral practices and droveways using an innovative combination of landscape archaeology (remote sensing, microtopographic survey, machine learning, spatial statistical approaches, movement modelling, archaeological excavations), landscape history, ethnoarchaeology, geosciences and palaeobotany. An innovative approach aimed at defining standardised and replicable methodological protocols to contribute to the knowledge of pastoral landscapes, inform future policies and promote good management practices.

2298. TRANHUMANCE: FORGOTTEN MEDIEVAL FARMING PRACTICES ON THE ISLE OF MAN

**Contribution format:** Oral  
**Contribution authors:** Andrew Johnson (Manx National Heritage)

‘EARY or AEREE: an open airy place’ - this erroneous definition, from an early nineteenth-century dictionary, of the Manx Gaelic word for a shieling site demonstrates how comprehensively the medieval practice of transhumance had been lost from collective local memory. Almost two hundred years later, upland archaeology on the Isle of Man still faces challenges from the competing demands of modern land-uses such as forestry, agriculture, amenity use, rewilding and carbon sequestration, and a commonly-held assumption that the landscape lacks historical and cultural interest. The Isle of Man is a small island of 580km<sup>2</sup> lying between Great Britain and Ireland, sharing cultural affinities with its bigger neighbours whilst harbouring its own identity. Its lowland landscape remains largely rural and preserves a system of landholding which has its origins in the medieval period. In contrast, the uplands have the appearance of open moorland, whilst abandoned farms on the margins between upland and lowland reinforce the notion that this was the limit of historical farming. At similar altitude, however, lie small earthworks which limited excavation and survey have shown to be the remains of medieval settlements or shielings, once used seasonally to manage livestock grazing on common pasture. Ongoing studies - combining intensive surveys, placename evidence and investigation of routeways - now provide a clearer picture of a seasonal cycle involving the movement of animals and people to and from the hills, the creation and maintenance of stockproof boundaries, the construction of buildings for shelter and enclosures for securing livestock, and meantime bringing about significant vegetational change. The range and number of features is far greater than previously understood, on one hand demonstrating how central transhumance once was to local medieval agricultural practice, whilst on the other raising the question of how, and why, it came to be so completely forgotten.

1169. THE CHANGING ROLE OF WOODLANDS IN THE LOCAL ECONOMIES AND SOCIETIES THROUGH HISTORICAL CARTOGRAPHIC ANALYSIS (19TH-20ST C.)

**Contribution format:** Oral  
**Contribution authors:** Raffaele Voccia – Adele Repetto – Caterina Piu – Anna Maria Stagno (Laboratory of Environmental Archaeology and History, DAFIST-DISTAV (University of Genova))

This paper aims at discussing the first results of a research project aimed to analyse the historical dynamics of changes in the management of woodlands, forests and environmental resources in the Italian mountains between the 19th and 20th c. The analysis is focused on three case studies: Borzonasca (eastern Ligurian Apennines), Perarolo di Cadore (Carnic Alps), and Mercatello sul Metauro (Central Apennines) which experienced different socio-economic trajectories, providing a significant framework for understanding the relationship between the economic and productive organization of local communities and the changes in the relationship between husbandry and silvicultur. in relation to the establishment of the forestry regime, since the promulgation of the “Codice Forestale” in 1822 and then with first Italian Forestry Law in 1877. The examination and comparison of a series of historic maps produced during this timespan, through the cartographic filtering, allowed to reconstruct the changes in the vegetation cover and land organisation, highlighting discontinuities, with particular reference to the disappearing of scattered trees (thus wooded pastures) during the 19th c. and the growth of new forest formations since the half of the 20th c. Then, archaeological surveys aimed to verify continuities in vegetation cover, as well as more in general, to identify material traces of past practices to manage environmental resources in present landscape (paths, terraces, pastures, wooded pastures, water regimentation etc.). The interdisciplinary approach, which combines landscape archaeology, environmental history, and geospatial analysis, allows the contextualization of the historical dynamics of tree resource management, offering new perspectives for interpreting contemporary mountain landscapes.

1892. MULTIFUNCTIONAL LANDSCAPES IN THE SIERRAS SUBBÉTICAS OF CÓRDOBA: THE CASE OF ZUHEROS FROM AGRARIAN ARCHAEOLOGY PERSPECTIVE

**Contribution format:** Oral  
**Contribution authors:** José Delgado (University of Oviedo)

Zuheros (Córdoba, Spain) is a small village located at the northern edge of the Sierras Subbéticas, in contact with the countryside, that has undergone the economic transformations typical of contemporary western rural areas. Traditionally, its self-subsistence economy was based on diversified agriculture, forest management, and goat and sheep farming. These activities developed within a model that integrated the dynamics of both the mountains and the lowlands, optimizing the use of the immediate environment. Some of these practices were closely linked to broader socioeconomic networks, connecting mountain economies with those of lower areas and urban centers. As a result, Zuheros was also recognized for its muleteering activity and its role in trade at various scales. With the advent of economic liberalism, a transition towards olive monoculture began, aligning with broader regional trends. More recently, natural and heritage tourism has emerged as a new development path. However, this approach has tended to “naturalize” the landscape, relegating key elements of its agrarian past to oblivion and, in some ways, distorting the traditional perception of the mountain as a productive source of subsistence. This paper, within the framework of a transdisciplinary research project that integrates Landscape Archaeology and Agrarian Archaeology, seeks to reassess the multifunctional role of microterritories. The aim is to analyze how historical land-use practices not only sustained the Zuheros community for centuries but also shaped local identities and attachments to its territory. Additionally, it seeks to provide data that can serve as a basis for defining sustainable development strategies, grounded in the scientific evidence that archaeology can offer to address current challenges of marginalization and the promotion of sustainable development in rural areas.

215. RETAILING ON THE SLOPES: AN INTERDISCIPLINARY EXPLORATION OF A VILLAGE SHOP IN ANO GATZEA, MOUNT PELION

**Contribution format:** Oral  
**Contribution authors:** Nota Pantzou (University of Patras) – Niels Andreasen (Copenhagen Museum) – Georgia-Cleo Gougoulis (Independent)

This paper explores the intersection between mountain economies and cultural landscapes through the lens of small-scale retailing in the mountainous region of Mount Pelion, Greece, specifically analyzing an abandoned village shop in Ano Gatzea that operated from the 1920s to the 1990s. The operation of this community shop is linked to the operation of the small railroad that connected the port city of Volos with the village of Milies, with Ano Gatzea flourishing as one of the six stations of the railroad. From 1920s onwards, its build environment grew, and a cash crop and commercial economy developed relying on migrant labour and exports to various commercial centers. These developments boosted local demography and contributed to the flourishing of local retailing and craftsmanship as attested by the gradual opening of a substantial number of retailing units and workshops in Mount Pelion. By situating this local enterprise within the broader economic practices and socio-cultural networks of South Pelion, we examine how such retail enterprises contributed to shaping both the physical and social landscapes of this mountainous area, following the changes brought to the landscape and the economy through the Pelion railway line operation. Adopting a “Follow the Thing” approach, our study traces the lifecycle of the exhibited commodities—from production to distribution and consumption—within the context of both local and global economies. This study contributes to our understanding of the dynamic relationship between local economic practices and their lasting impact on mountainous landscapes and communities during a transitional period characterized by the commercialization and modernization of local agricultural economies. By integrating interdisciplinary methods, this paper elucidates the often-overlooked contributions of rural retail networks to regional economies and their imprint on the cultural landscapes of mountain regions like Pelion, contributing to our understanding of economic continuity and change in mountainous regions.

826. CHARCOAL PRODUCTION AND LANDSCAPE TRANSFORMATION IN THE APUANO-VERSILIAN MOUNTAINS: AN ARCHAEOLOGICAL-ETHNOGRAPHIC PERSPECTIVE

**Contribution format:** Oral  
**Contribution authors:** Salvatore Basile – Francesca Anichini – Gabriele Gattiglia (Pisa University) – Radoslaw Grabowski (RAAP) – Claudia Sciuto (Pisa University)

Since ancient times, the Apuano-Versilian mountains have been characterised by a complex system of economies intrinsically linked to the region’s environmental specificities, progressively shaping its landscape. Traces of this deep relationship remain visible today and continue to influence local memory and certain preservation practices. Drawing on a broad territorial framework based on data collected through archaeological-ethnographic fieldwork and surface surveys, this study focuses on the material traces left by charcoal production processes,



which played a key role in shaping the landscape between the 19th and 20th centuries. These activities altered the physical environment and defined aspects of social relations within the region. Targeted sampling and archaeometric analyses have been conducted to examine the structure of charcoal-burning platforms, the types of wood used, and combustion sequences. Historical and cartographic data, combined with Historic Landscape Character Assessment (HLCA) techniques, have enabled researchers to explore the connections between landscape transformation and changes in production practices. Furthermore, oral history research has helped reconstruct the links between the mountains and the lowland areas. Initially, these lowland areas sustained the charcoal economy by creating demand through emerging factories in the plains and peri-urban zones. Later, they became centres of industrial employment, drawing workers away from traditional charcoal production and contributing to the gradual depopulation of mountain settlements. Ethnographic research has also highlighted key aspects of the social impact of this economy on local communities, including gender and generational relations, the recognition of social roles, the value attributed to the practice itself, and the processes of preserving and regenerating its memory.

**2223. KEEPING THE FIRE ALIVE: MAINTENANCE ACTIVITIES AND HUMAN-ENVIRONMENT RELATIONSHIPS IN THE PYRENEES**

**Contribution format:** Oral  
**Contribution authors:** Laura Obea Gómez – Raquel Piqué Huerta – Ermengol Gassiot Ballbè (Universitat Autònoma de Barcelona)

Archaeological research carried out over the last 20 years on the southern slopes of the Pyrenees has revealed a continuous and dynamic occupation of the high mountain areas over time. Livestock farming seems to have been the main economic activity although iron extraction and reduction sites, hunting camps, furnaces and charcoal kilns have also been documented. In addition to the main economic activities, maintenance activities, necessary for the sustenance and well-being of the people, were also carried out in the high mountain areas. These activities enable the reproduction of individuals and the transmission of social values. Among these is the collection of domestic fuel, which reflects the way in which societies relate to their environment. With the aim of defining the strategies of firewood gathering in the high Pyrenean mountains from the 9th millennium BCE and the 13th century CE, we have analysed the charcoal fragments recovered from 20 archaeological sites located in different valleys on the southern slopes of the Pyrenees. To have a complete image, we have included the results from seed, pollen and phytolit analysis and from palaeoenvironmental cores. The use of SIG tools have allowed us to integrate some geographical information regarding the location of the site into the analysis of charcoal fragments. The results allow us to suggest that the firewood used in the Pyrenean settlements would have been collected in areas located within a radius of less than one hour walk from the site, possibly in the spaces where other economic activities were carried out. Thus, although the altitudes within the area of influence of the settlements will be a conditioning factor for the firewood used, the way in which the different human groups interacted with their environment must also be taken into account.

**2172. HUMAN OCCUPATION AND PAST ECONOMY IN THE HIGH MOUNTAIN ENVIRONMENTS OF THE SOUTHERN CENTRAL PYRENEES: EVIDENCE FROM THE AIGÜESTORTES AREA**

**Contribution format:** Poster  
**Contribution authors:** Ermengol Gassiot Ballbè (Departament de Prehistòria, Universitat Autònoma de Barcelona) – David Garcia-Casas (Instituto de Ciencias del Patrimonio (INCIPIT-CSIC)) – Laura Obea-Gómez (Departament de Prehistòria, Universitat Autònoma de Barcelona) – Guillem Salvador-Baiges – Ferran Antolin-Tutusaus (Deutsches Archäologisches Institut) – Sara Díaz-Bonilla (Departament de Prehistòria, Universitat Autònoma de Barcelona) – Niccolò Mazzucco (Università di Pisa) – Ignacio Clemente-Conte (Institutió Milà i Fontanals (IMF-CSIC))

After 20 years of archaeological research (surface studies, site sampling and open-area excavations), 378 archaeological sites have been documented in the Aigüestortes i Estany de Sant Maurici National Park (PNAESM). This is a rugged area located at the eastern end of the Maladeta batholith, on the southern slopes of the central Pyrenees, with altitudes ranging from 1500 to 3000 meters above sea level. The documented sites have diverse characteristics, although the remains of dry stone constructions of fences and huts predominate, together with the occupation of small rockshelters. Nearly 115 AMS datings have made it possible to define a sequence of 10,000 years of occupation. The excavation of some of these sites (Abric de l’Estany de la Coveta I, Cova del Sardo, Despoblat de la Cova, Abric d’Obagues de Ratera and Portarró) has made it possible to characterize the dynamics of occupation and the activities carried out at these sites, all of which have a succession of prehistoric and historical phases of occupation. Archaeological research has often been carried out within the framework of interdisciplinary programs in which it has been combined with various paleoenvironmental and paleoecological approaches. This poster summarizes the results of this interdisciplinary research, which has made it possible to characterize, on

the one hand, the economic activities of the different human groups in the PNAESM throughout the Holocene. In this sense, in addition to the changes caused by the introduction of livestock farming and agricultural practices, modifications in the management of herds over time have been observed. On the other hand, it points to evidence of the impacts of these activities on high mountain paleolandscapes.

**168 MERC ROUNDTABLE. THE POST-MEDIEVAL BALKANS: FROM STEREOTYPE TOWARD ARCHAEOLOGICAL HERITAGE AND SCIENCE**

**Session theme:** 6. Intertwining archaeology, heritage, and museums  
**Session format:** Round table  
**Session keywords:** Postmedieval archaeology, Ottoman heritage, Balkans, scientific improvements  
**Session organisers:** Monika Milosavljevic (University of Belgrade) – Carlo Citter (University of Siena)  
**Session speakers:** Andrej Janeš (Croatian Conservation Institute Zagreb) – Veronika Nikolova (The National Archaeological Institute with Museum at the Bulgarian Academy of Sciences ) – Zrinka Mileusnić (University of Primorska) – Adnan Muftarević (Museum of Sarajevo)

**SESSION ABSTRACT**

A picturesque view of Ottoman-Balkan heritage lingers, one that incorporates both the expanse of its former glory and its internal issues - as represented by the iconic Mostar Bridge of the 16th c. in Bosnia and Herzegovina, the Parthenon of Greece which spanned its life as an ancient temple, church, mosque and emblematic tourist site, as well as the multilayered Belgrade Fortress, to name a few. As such, this forum aims to dissect Ottoman heritage and show advancement in postmedieval archaeology within the Balkans. In terms of education, postmedieval archaeology, even though it is highly present in research as well as as a source of identity signifiers, has yet to be fully recognised as a branch of archaeology in the Balkans. Although traditionally researched through the lens of architectural monuments and under the outdated paradigm and pressure of Oriental stereotypes. the late opening of the subdiscipline of postmedieval archaeology is not the result of insufficient material culture; rather, it is due to the persistent prejudices against the Ottoman past. In a more contemporary context, the perspectives of post-medieval archaeology, not merely Ottoman, permit an embrace of cultural heterogeneity and interconnectedness through its diverse material remains using up-to-date technologies and scientific approaches. In the archaeology of the Balkans, new potentials are emerging through the implementation of critical theoretical perspectives, archaeology and digital humanities, to mention just a few. This MERC roundtable is to serve as a platform to discuss the social, scientific, historical, aesthetic and economic values of postmedieval sites and heritage. The forum will be based on a presentation of several case studies.

**169 LATE NEOLITHIC/EARLY CHALCOLITHIC NETWORKS OF CHANGE: THE LOWER DANUBIAN TELLSCAPE TRANSFORMATIONS**

**Session theme:** 8. Along and across the Danube!  
**Session format:** Regular session  
**Session keywords:** Neolithisation, Chalcolithic, Tells, Networks, Socio-environmental transformations  
**Session organisers:** Robert Hofmann (Institute of Prehistoric and Protohistoric Archaeology, Kiel University) – Catalin Lazar (Research Institute of the University of Bucharest (ICUB))

**SESSION ABSTRACT**

In European prehistory, tell settlements represent a type of habitation of vital historical significance, introduced with the arrival of first farmers from Anatolia, dating back to the Early Neolithic. These settlements spread along the main route of Neolithization from Anatolia and Greece and the Balkans to the Pannonian Plain. Tells are more than just a new type of settlement; they are veritable socio-economic hubs incorporating new concepts, strategies and visions brought by the migrating newcomers from the south. During the Neolithization process, the Lower Danubian regions were influential areas in Southeastern Europe, many crucial innovations took place here (e.g., metallurgy). However, the area in question did not adopt the tell settlement model until the Late Neolithic and Chalcolithic, despite the presence of farmers with genetically Anatolian origin being attested as far back as the Early Neolithic (c. 6200-6000 BCE). The development of the Late Neolithic / Early Chalcolithic tellscapes represents a crucial peak in socio-economic and social cultural terms in the targeted area. In Southeastern Europe, recent fieldwork has displayed a new picture of these farmer’s societies at different sites. Several transformation events and phases could be detected in the area. Besides certain local, regional, and global changes visible within e.g. Gumelnița (KGK VI) and other societies, the end of the tells is still under discussion. New archaeological, environmental and genetic evidence sheds a new light on these transformation processes, and also in neighbouring



regions (e.g., North Pontic Steppe, Carpathian basin), important changes are indicated. The session aims to detect “networks of change” driven by the tell settlers. We welcome contributions by archaeologists, natural sciences and live sciences, in order to identify more precise the impact of tellscape phenomenon in Southeastern Europe and its effects in the neighbouring regions.

CONTRIBUTION ABSTRACTS

2181. TELL SETTLEMENTS FROM WALLACHIA AND DOBROGEA, SOUTH-EASTERN ROMANIA: GEOMORPHOLOGICAL BACKGROUND, STRATIGRAPHY, AND EVOLUTION

**Contribution format:** Oral  
**Contribution authors:** Constantin Haita (National Museum of Romania History)

In south-eastern Romania, tell sites phenomenon is specific to Gumelnița Eneolithic culture, although there are settlements continuing occupations attributed to the subsequent Boian culture. These multi-layered settlements now represent anthropic mounds with circular or oval areas, with a maximum diameter of about 200 m, marked by delimitation structures, stratigraphy formed by continuous accumulation of sediments from successive construction, occupation, and destruction phases, and an organization of the inhabited space. Archaeologically recovered structures are interpreted as fired or unfired dwelling structures, passage areas, waste zones, and various activity zones. Pits and trenches are also identified within the complex stratigraphy of these sites. In this paper, we discuss the spatial distribution of more than 200 tell sites, as resulting from the GIS mapping and analysis of their geomorphological background, in relation to Pleistocene and Holocene deposits. The identified areas of specific evolution, such as Dobrogea, the Danube floodplain, and the hydrological basins of main tributaries, were analyzed considering their relative and absolute chronology. Sedimentological case studies of tell sites with different geomorphological (low alluvial terrace or high loess terrace, terrace remnant, alluvial bar, island), and chronological framework (Gumelnița A1, A2, and B1 phases), are discussed in context with their landscape and the available environmental data. All relevant information resulting from the interdisciplinary research projects is addressed, to obtain a more complete image of the Gumelnița tell settlements formation and dynamic.

1794. UNRAVELING LOWER DANUBE REGIONAL NETWORKS: HOW VLĂDICEASCA’S TELL SETTLEMENTS SHAPED CULTURAL AND ENVIRONMENTAL CHANGES IN THE MOSTIȘTEA VALLEY (ROMANIA)

**Contribution format:** Oral  
**Contribution authors:** Catalin Alexandru Lazar – Cristina Covataru – Alfred Vespremeanu-Stroe – Theodor Ignat – Adrian Șerbănescu – Laurentiu Tutuianu – Cristian Roth – Catalin Rotar (University of Bucharest) – Valentin Parnic (Lower Danube Museum, Calarasi)

The pair tell settlements of Vlădiceasca (Ghergălăul Mic and Ghergălăul Mare), located in the Lower Danube region near the Mostiștea River, and dated in Eneolithic (c. 4900-4000 BCE), represent critical hubs for understanding socio-economic transformations driven by early farming communities. Submerged for decades and recently re-exposed due to water-level decline, these sites underwent multidisciplinary investigations combining intrusive (stratigraphic coring) and non-intrusive methods (aerial photogrammetry, magnetometry, bathymetry). Results reveal well-preserved stratigraphic sequences (up to 10 m depth) with alternating anthropogenic and natural deposits alongside archaeological materials from the Eneolithic and La Tène periods, indicating prolonged habitation and cultural continuity. The stratigraphic analysis identified distinct layers rich in charcoal, burnt clay, and ceramic fragments, suggesting intensive domestic activities and possible ritual practices. Magnetometric surveys and DEM mapping highlighted submerged sections of Ghergălăul Mare, while bathymetric profiles traced the proximity of the prehistoric river course, underscoring the settlers’ adaptation to dynamic hydrological environments. Loess-like deposits and flood-related silts point to episodic environmental challenges, mitigated through resilient settlement strategies. These findings contribute to the “tellscape” discourse by linking local Boian-Gumelnița groups practices (5th millennium BCE) to broader transregional networks. The sites’ role as socio-economic nodes is evident in their material culture and spatial organization, reflecting innovations in metallurgy and resource management. This work was supported by a grant of the Ministry of Research, Innovation and Digitization, CNCS - UEFISCDI, project number PN-IV-P2-2.1-TE-2023-0876, within PNCDI IV.

1717. LIFE IN THE FLOODPLAIN: MULTIDISCIPLINARY RESEARCH ON THE COPPER AGE TELL CHISELET IN THE LOWER DANUBE BASIN

**Contribution format:** Oral  
**Contribution authors:** Robert Hofmann (Institute of Prehistoric and Protohistoric Archaeology, Kiel University) – Stefan Dreibrodt (State Office for Monument Preservation Baden-Württemberg) – Manuel Zolchow (Institute for Geosciences, Kiel University) – Adrian Balaescu – Valenti. Radu (Institute of Archaeology “Vasile Pârvan” Bucharest, Romanian Academy)

– Theodor Ignat (Bucharest Municipality Museum) – Catalin Lazar (Research Institute of the University of Bucharest (ICUB), University of Bucharest) – Wiebke Kirleis (Institute of Prehistoric and Protohistoric Archaeology, Kiel University) – Wolfgang Rabbel (Institute for Geosciences, Kiel University) – Johannes Müller (Institute of Prehistoric and Protohistoric Archaeology, Kiel University)

In the 5th millennium BCE, Copper Age settlement landscapes developed in the valley of the lower Danube and its tributaries, within those impressive tells, adjacent flat settlements and extensive cemeteries became focal points of human communities. Differences in the location of tells in the landscape and the size of these settlements suggest a complex settlement system with different economical foci and communities sizes. Within a Romanian-Belgian-German cooperation, multidisciplinary investigations are being carried out at Tell Chiselet, which is characterised by its location deep in the floodplain of the Danube in the Călărași county at the shoreline of a former large riverine lake. In our paper we will present new data on geophysical, geoarchaeological, archaeozoological and archaeological investigations at this tell and its surroundings. As a contribution to the further multidisciplinary discussion on impact and land use in the surroundings of this settlement mound, we are able to reconstruct and contextualise duration, community size, settlement behaviour, and sedimentation history of this settlement.

1860. APPLYING GEOPHYSICAL METHODS FOR STRATIGRAPHICAL INVESTIGATIONS OF THE CHALCOLITHIC TELL CHISELET - GRĂDIȘTEA FUNDEANCA

**Contribution format:** Oral  
**Contribution authors:** Manuel Zolchow – Daniel Köhn (Institute of Geosciences, Kiel University) – Natalie Pickartz (State Office for Cultural Heritage Baden-Württemberg) – Martin Thorwart (Institute of Geosciences, Kiel University) – Adrian Serbanescu (Research Institute of the University of Bucharest (ICUB), University of Bucharest) – Stefan Dreibrodt (State Office for Cultural Heritage Baden-Württemberg) – Robert Hofmann – Johannes Müller (Institute of Pre- and Protohistoric Archaeology, Kiel University) – Catalin Lazar (Research Institute of the University of Bucharest (ICUB), University of Bucharest) – Wolfgang Rabbel (Institute of Geosciences, Kiel University)

For the understanding of socio-economic transformations occurring in the lower Danube area during the East European Chalcolithic period, the multiphase chronology and structural layout of tell type settlements inhabited by people of the Gumelnița society are of major interest. In this context non-invasive geophysical methods are valuable tools for the required stratigraphical investigations, but are challenged by the topographic conditions and small-scale internal habitation structures. We will show that essential stratigraphic information can be obtained by applying two-dimensional seismic shear wave sounding evaluated with full waveform inversion (FWI) beside standard magnetic prospection. Therefore we carried out measurements at the Chalcolithic tells Chiselet - Grădiștea Fundeanca located in Romania. Our investigation is aiming to identify archaeological features like buried houses or fortification installations as well as to reconstruct different settlement phases and the surrounding paleolandscape of the tell. We also include down-hole magnetic susceptibility measurements, dynamic testing and geoarchaeological corings for ground truthing. With our seismic investigations we were able to identify two zones of increased shear wave velocity, which are related to layers of densely accumulated daub and ceramics between the surrounding looser filling material and indicate horizons of settlement activity (4300 BC and 4500 BC). Moreover, we upgrade the reconstruction of the latest settlement derived from the magnetics, since house remains are clearly indicated by characteristic seismic anomalies and thus independent of their degree of combustion. Further investigations at the tell flank and in the surrounding plane reveal an palaeo-channel or lake shore adjacent to the southern tell flank.

1130. SUBSISTENCE STRATEGIES IN COPPER AGE SOUTHEASTERN EUROPE: INSIGHTS FROM Δ<sup>13</sup>C AND Δ<sup>15</sup>N ISOTOPE ANALYSIS AT TELL YUNATSITE (BULGARIA)

**Contribution format:** Oral  
**Contribution authors:** Ana García-Vázquez (ArchaeoScience Division, Research Institute of the University of Bucharest) – Kamen Boyadzhiev (National Archaeological Institute with Museum at the Bulgarian Academy of Sciences) – Petra Coman (ArchaeoScience Division, Research Institute of the University of Bucharest) – Adrian Bălășescu (ArchaeoScience Division, Research Institute of the University of Bucharest | “Vasile Pârvan” Institute of Archaeology, Romanian Academy) – Mihaela Golea (“Vasile Pârvan” Institute of Archaeology, Romanian Academy) – Mihail Secu – Iulia Bogdan (National Institute of Materials Physics (NIMP), Romania) – Viorel Atudorei (Department of Earth and



Tell Yunatsite, also known as Ploskata Mogila (the Flat Mound), is one of the most significant tell settlements in Southeastern Europe. Located in the Upper Thracian Plain, this site has been continuously investigated for over 50 years, yielding crucial insights into the Chalcolithic (5th millennium BC) and Bronze Age. Its strategic position along key communication routes, including the later Via Diagonalis, highlights its importance in prehistoric exchange networks. This study presents stable isotope ( $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$ ) analyses of collagen from eight human individuals dated to the second half of the 5th millennium BC, providing new data on dietary practices at Tell Yunatsite. To establish a robust isotopic baseline, we also analysed a range of domestic (cattle, dog, goat, sheep, pig) and wild (aurochs, roe deer, beaver, red deer, hare, wild boar, bear) fauna, alongside cultivated plant remains (wheat, barley, lentil). The results offer valuable insights into subsistence strategies, protein sources, and the role of plant and animal consumption in Chalcolithic diets. This research enhances our understanding of prehistoric lifeways in the Balkans and contributes to broader discussions on dietary variability in early farming communities.

### 2388. ON AND OFF THE TELL: WHAT IS THE DIFFERENCE?

**Contribution format:** Oral  
**Contribution authors:** Petar Zidarov (Universität Tübingen, Institut für Ur- und Frühgeschichte und Archäologie des Mittelalters)

Tell settlements were easily identifiable in the landscape and, along with caves, became obvious targets for aspiring prehistoric archaeologists throughout much of the 19th and 20th centuries. The last three decades have witnessed a surge in construction projects and intensified geophysical surveys across much of southeastern Europe, calling for a revision of the extended (flat) versus tell-settlement dichotomy. In this paper, I compare the overall picture provided by geophysical surveys with fine-grained and well-dated excavation results to earlier models of tell development in the Eastern Balkans in a diachronic perspective. Preliminary results provide evidence that many settlements began their development with the inherent elements of a tell settlement, such as a delimited territory and a regularly planned layout, but only some of them managed to develop cumulatively over time. Other settlements maintained a more loose settlement organization, but in their time they certainly participated in the exchange networks and deserve attention as a more resilient settlement form that succeeded the tell phenomenon after its demise towards the end of the fifth millennium BC.

## 170 FLAX AND LINEN IN ANTIQUITY: A MULTIDISCIPLINARY APPROACH

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** Flax and linen, Fibre processing, Archaeology, Iconography, Social symbolism  
**Session organisers:** Chiara Serena Spinazzi-Lucchesi (University of Copenhagen) – Susanna Harris (University of Glasgow) – Cristina Ambrosioni (University of Padua)

### SESSION ABSTRACT

The study of flax and linen in ancient societies presents both a fascinating and complex challenge for scholars. Although linen textiles played a significant role in the daily lives and economies of ancient societies, physical remnants of these materials have largely disappeared from the archaeological record. Consequently, our understanding of ancient flax cultivation, linen production, and textile use must draw extensively on secondary sources across multiple fields. Archaeological artefacts, iconography, and written sources all provide valuable, albeit fragmentary, insights into the importance of flax and linen in this region. In societies where textual records are limited or absent, references to flax cultivation, linen production, and linen use become especially significant for reconstructing ancient practices. However, interpreting these data is no straightforward task. A primary challenge lies in assessing to what extent data from each subject align with results from other disciplines, mediated by artistic conventions, cultural values, and the symbolic meanings attributed to linen in particular contexts. Thus, reading these data involves more than identifying physical forms; it demands a contextual and interdisciplinary approach that considers the layered interpretations held by different viewers in different settings. This session invites papers that analyse flax and linen in antiquity, drawing on a range of disciplines including archaeology, linguistics, art history, epigraphy, archaeobotany, and textile studies. We encourage contributions that explore the cultivation, processing, and uses of flax and linen, as well as the social, economic, and symbolic roles that linen textile played in ancient societies. Key questions to consider include (but are not limited to):

- Cultivation and Processing
- Materiality and Representation • Garment Depictions and Written Sources

- Social Practices and Values
- Religious and Symbolic Aspects

### CONTRIBUTION ABSTRACTS

#### 606. DID LINEN MEAN LINEN IN THE LINEAR B TABLETS FROM CRETE AND MAINLAND GREECE DURING THE IIND MILLENIUM BC?

**Contribution format:** Oral  
**Contribution authors:** Gaétan L’Her (University of Strasbourg, ED 519, UMR 7044 Archimède)

Today, the English word “linen” refers not only to the plant matter (flax) but also to other fibre/fabric with similar qualities. Following this observation, the present paper aims to question whether the words currently translated by “linen” or “flax” (RI/ri-ta; SA/ri-no), in the Linear B texts from Crete and Mainland Greece (IInd Millenium BC), are employed to refer to real linen or to some items close to linen. The main corpus of the study will be constituted by texts in Linear B coming from Pylos, Thebes and Knossos. However, such an issue necessarily implies a multidisciplinary approach including the study of Aegean archaeological artefacts and ecofacts that shed a different light on the question. By reassessing the attestations of RI/ri-ta and SA/ri-no and their derivative in the Linear B tablets, the paper attempts to identify if and when it is possible to see in these words other reality than linen. The fibre thus identified will be compared to linen considering their physical characteristics (colour, fineness, thickness...), their origin (vegetal, animal, mineral, insects), and their treatments: how the raw material is treated to extract the fibres (ex. retting), how the fibres themselves are treated (ex. bleaching, washing), and which techniques are used to create threads from these fibres (ex. spindle spinning, hand spinning). In a comparative perspective, the paper will also refer to better known cases in which the name of a particular fibre is used for other fibres (ex. byssus from the Ist Millenium BC onwards) that has already drawn attention of scholars (Burke, 2012; Soriga and Carannante 2018). Finally, this inquiry will introduce a more global reflection on the fibres’ identification problematic in ancient texts and languages.

#### 1566. FLAX AS A TEXTILE PLANT IN FINNISH CONTEXT

**Contribution format:** Oral  
**Contribution authors:** Jenni Suomela (University of Helsinki)

Compared to the Southern Europe, flax is a relatively new fibre plant in Fennoscandian Finnish Peninsula. The earliest macrofossil finds are from the Late Roman Iron Age which was in Finland around 200-400 CE. These plant related finds do not reveal if the crop was utilised for oil or textile fibres, or both. Dual utilisation is possible - just recently researchers showed evidence of flax oil pressing from the 10th century at the island of Åland. Acid soil conditions do not support preservation of cellulose based textile remains and due to that occurrence of archaeological linen finds elude to the turn of the millennia. Other bast fibre possibilities in the context were hemp and nettle, cotton started to gain popularity in Finland only as late as in the 19th century. Even though the trustworthiness of older bast fibre identifications has been discussed in the field, it is quite safe to say that during the period starting from the Late Iron Age to the beginning of the Industrial Era, flax was clearly the most popular fibre plant in the Finnish area. During the historical times, it was for sure the most popular textile material produced in the area. The growing conditions were beneficial and flax both in fibre state as well as in ready woven cloth was exported tremendous amounts in the 18th and 19th centuries. Sadly, even though flax still thrives well in Finland, there has not been flax agriculture for textile purposes in Finland for the last 25 years. Without having the living heritage, flax has had a huge impact on Finnish cultural history, especially on vocabulary. This presentation summarises the main points and issues related to cultural heritage of flax utilisation in Finnish textile history.

#### 948. LOST BIODIVERSITY AND ERODED CULTURE OF FLAX. ARCHAEOBOTANICAL AND TEXTILE ANALYSES IN ANCIENT ITALY: PRELIMINARY RESULTS FROM THE ARAKNE PROJECT

**Contribution format:** Oral  
**Contribution authors:** Milena Primavera (Laboratorio di Archeobotanica e Paleoecologia - University of Salento (Le-IT)) – Gabriella Longhitano – Francesco Meo – Gianluca Tagliamonte (University of Salento (Le-IT)) – Anna Maria Grasso – Matilde Stella (Laboratorio di Archeobotanica e Paleoecologia - University of Salento (Le-IT)) – Giovanni Quarta – Maurizio Masieri (CNR-Istituto di Scienze del Patrimonio Culturale (Le-IT))

The ARAKNE project (PRIN2022 PNRR, funded by M.U.R. and NextGenerationEU) explores the “lost biodiversity” and “eroded culture” associated with flax production in ancient Italy, addressing the intricate relationship between biological and cultural heritage through a multidisciplinary framework. By integrating bioarchaeology (archaeobotany), textile archaeology, and historical and ethnographic perspectives, the project leverages a



deep-time archaeological approach to reconstruct the ancient exploitation of possible plant varieties that may have become marginal or even disappeared. Focusing on central-southern Italy—where flax remains and textile evidence are particularly well-preserved—the project adopts an innovative methodology that combines archaeobotanical analyses of *Linum* seeds, employing morphobiometric and image analysis techniques to identify different flax varieties and track their morphological evolution over time. In parallel, microscopic analyses of textile fragments, conducted through SEM and polarized light microscopy, provide insights into weaving techniques and fibre quality. In addition, by reviewing literary sources this project offers further data on the use of linen in pre-Roman times, with particular reference to its use in the military equipment and armour. The proposed contribution presents the preliminary results of the ARAKNE project, offering new perspectives on the history of flax in central-southern Italy. In particular, fibre analysis on textile fragments dated back from prehistory to Medieval times demonstrates a wide production and consumption of linen for clothing in southern Italy. Also, the comparison between modern seed collections and archaeobotanical specimens has revealed key patterns in the ancient diffusion of fibre flax and has identified morphotypes that were more likely cultivated for oil production. This paper sheds light on the diversity of cultivated flax varieties, possible technological changes in textile production, and contributes to a deeper appreciation of flax as a fundamental component of Italy’s biocultural heritage.

334. FLAX AND SPLICING TECHNOLOGY IN EUROPEAN PREHISTORY

**Contribution format:** Oral  
**Contribution authors:** Cristina Ambrosioni – Margarita Gleba (University of Padua)

Flax fibre products have a complex and time consuming chaîne opératoire which involves the interrelated tasks of gathering / cultivating and harvesting plants, processing to extract the fibres, then twisting them into threads before they can be worked into the more familiar stages of weaving, interlacing and looping. Recent research into fibre technology of Neolithic Switzerland and Bronze Age Britain points to a long tradition of working flax fibres into threads by splicing, rather than draft spinning. Spicing was the original plant fibre technology in Europe and the Mediterranean going back at least to the use of tree bast in the Mesolithic. Previously this technique was only recognised in ancient Egypt, Levant and the Far East. This paper presents new results that identify splicing of flax in pre- and protohistoric Italy. These results demonstrate that techniques of splicing flax fibres into yarn extend from the Neolithic to the Iron Age and continued alongside the adoption of draft spinning.

1114. WET SPINNING OF FLAX, A LONGUE DURÉE, TRANS-EUROPEAN AND TRANS-MEDITERRANEAN INDUSTRIAL PROCEDURE – FROM EARLY ANTIQUITY TO THE PRESENT

**Contribution format:** Oral  
**Contribution authors:** Nahum Ben Yehuda (—)

Since the dawn of history, staple fibers have been spun by hand. The implement used for spinning was a spindle. The spinning process serves to adhere the overlap of the natural fibers by friction of the twist, thus creating a virtually endless strand, which could then be used for weaving. The spinning wheel arrived in Europe in the 13th century CE. It emulated the functions of the spindle – and increased productivity by means of partial mechanization. Full mechanization – and subsequent superior productivity – was achieved by several inventions in the 18th century. A unique aspect of spinning flax fiber is mentioned by Pliny the Elder (1st century CE): “When (flax is) spun into thread, it is rendered additionally supple by being soaked in water...” This technique provides a smoother yarn with greater tenacity. It can also be applied to hemp. The wet spinning of flax is recorded in rabbinical literature of the 3rd century CE. In Europe, flax spun by spindle was wetted in the drawing stage (often with saliva – “through the mouth) before twisting. This was implemented from a very early, albeit unidentified, time. Wet spinning was easily adapted to the “new” 13th century spinning wheel, by means of wetting the fingers in a small bowl of water. We find evidence of this spinning method in the Iberian Peninsula, Scandinavia, as well as in Western, Central, and Eastern Europe. In the early 19th century, Philippe Henri de Girard and John Kay applied wetting to the existing flax spinning machinery. Today, various systems for the mechanized wet spinning of flax are still in use, producing high quality yarns. We will trace and analyze the evolution of this Longue Durée, Trans-European and Trans-Mediterranean process in its ethnological implications and industrial aspects – from early antiquity to the present.

717. TEXTILES AND TEXTS: UNDERSTANDING NEW KINGDOM LINEN PRODUCTION THROUGH ARCHAEOLOGICAL AND WRITTEN SOURCES

**Contribution format:** Oral  
**Contribution authors:** Chiara Serena Spinazzi-Lucchesi (Centre for Textile Research, Saxo Institute, University of Copenhagen)

Ancient Egypt is renowned for its production of exceptionally fine linen textiles and its well-organized, large-scale textile manufacturing. Linen played a crucial role in daily life, the economy, and religious practices, serving as

clothing for all social classes, furnishings for homes and palaces, trade goods, and essential elements in funerary rituals. Excavations have revealed a tremendous number of textiles, including mummy shrouds several meters long and hundreds of meters of linen bandages used in embalming. The production of such vast quantities of fabric required the cultivation, processing, and spinning of flax, the warping of looms, and the weaving of textiles, some of which were further treated through bleaching or dyeing. This industry involved multiple levels of society, from domestic production within households to large-scale workshops managed by temples, palaces, and state institutions. Beyond the textiles themselves, what other sources are available for reconstructing linen production in the New Kingdom? What insights do they provide, how reliable are they, and how can they help us understand this key sector of ancient Egypt’s economy? This paper explores various textual, iconographic, and archaeological sources to examine the organization of textile production, the terminology used to describe different manufacturing stages, and the people and places involved. By integrating these different types of evidence, the study aims to clarify terminological issues and provide a comprehensive understanding of the linen industry in New Kingdom Egypt.

2274. INTERWOVEN SCENTS: THE INTERSECTION OF FRAGRANCE AND TEXTILES IN ANCIENT FLAX PRODUCTION

**Contribution format:** Oral  
**Contribution authors:** Robyn Price (Brown University) – Jordan Galczynski (University of California, Los Angeles)

Flax cultivation in ancient Egypt was a highly specialized process, yielding multiple valuable products—including linen textiles, linseed oil, and possibly fragrant materials. This paper examines the intersections between flax cultivation, textile production, and the use of scented oils, asking whether a single flax harvest could serve multiple economic and sensory functions. Did flax flowers contribute to fragrance production before stalks were processed into linen? Were fragrant oils incorporated into the spinning or finishing of linen textiles. Through a close analysis of artistic evidence, textual references, and archaeological remains, this study explores the seasonal rhythms of flax production and the potential overlap of labor, material use, and ritualized gifting and offering practices. Experimental archaeology provides further insights into linen’s capacity to absorb and retain scent, offering a new perspective on the relationship between textiles and fragrance in elite contexts. Additionally, the study considers why linen and scented oils were so frequently paired in textual and material records, moving beyond symbolic readings to explore the practical and labor-based links between these industries. By tracing the journey of flax from field to finished products, this paper highlights how fragrance and textiles were not just linked in ideology but in practice, shaping networks of production and exchange.

2472. A MULTIDISCIPLINARY STUDY OF A LATE IRON AGE BAST FIBRE CLOTH FROM ALCAÇOBA DE SANTARÉM (PORTUGAL)

**Contribution format:** Poster  
**Contribution authors:** Maria Martin Seijo – Joeri Kaal (Institute of Heritage Sciences (INCIPIT-CSIC), Santiago de Compostela) – João Tereso (CIBIO-BIOPOLIS – Research Center in Biodiversity and Genetic Resources, University of Porto | UNIARQ – Archaeology Center, University of Lisbon | CEIS20 – Centro de Estudos Interdisciplinares da Universidade de Coimbra) – Ana Margarida Arruda (UNIARQ – Archaeology Center, University of Lisbon)

Alcáçova de Santarém is situated on a plateau at 106 metres above sea level, overlooking the Tagus River on the south-eastern limits of Santarém, Portugal. The site was the focus of archaeological investigations between 1983 and 2001, when approximately 2000 m² were excavated as part of rescue and research projects led by A. M. Arruda and C. Viegas. The excavated area revealed evidence of a Late Bronze Age occupation dating from the early 1st millennium BCE, representing one of the few instances in the Lisbon Peninsula where a clear continuity between the Late Bronze Age and the Iron Age has been documented. The Iron Age phase is characterised by material culture, architectural features, construction techniques, and social practices influenced by eastern Mediterranean traditions, indicative of western Phoenician settlement in the region. The ceramic assemblage comprised vessels for food preparation and cooking, including pots, pans, and basins, alongside large containers used for storage. Inside one of these ceramic containers and associated with carpological remains, several fragments of a charred textile were found. Fibres were identified using optical and scanning electron microscopy (SEM), and they were chemically characterised using Energy Dispersive X-Ray Spectroscopy (EDX). In addition, analytical pyrolysis-GC-MS (Py-GC-MS) and thermally assisted hydrolysis and methylation (THM-GC-MS) of the fabrics were performed to assess the presence of chemical markers associated with the use of these textile remains. This multidisciplinary approach led to the classification of this cloth as a tabby textile made of bast fibre, most probably linen, radiocarbon dated between the 4th and 1st centuries cal. BCE. The presence of flax seeds has also been identified in this archaeological site.



171 UNDERSTANDING NEANDERTAL MOBILITY: RECENT ADVANCES IN RESEARCH AND DISSEMINATION

Session theme: 5. Finding the way! Archaeological sciences and opening new research perspectives  
Session format: Regular session  
Session keywords: Neandertals, Mousterian, Palaeolithic, Cultural heritage, Public archaeology,  
Session organisers: Ivor Jankovic (Institute For Anthropological Research) – Francesca Romagnoli (Universidad Autónoma de Madrid) – Lia Vidas (Institute for Anthropological Research)

SESSION ABSTRACT

Neandertals have captivated scientists and the public for nearly 170 years, often depicted as either primitive “cavemen” or idealized “noble savages.” Recent advances in paleoanthropology, archaeology, and related fields have significantly reshaped our understanding of Neandertals. Researchers now have extensive datasets offering fresh insights into their biology and behavior. This session provides a platform to explore new interdisciplin-ary approaches to Neandertal mobility, a key aspect of their behavior that sheds light on how they adapted to changing environments and navigated complex landscapes. Isotopic analysis of Neandertal remains, alongside archaeological evidence of resource procurement and site occupation patterns, reveals strategies for exploiting diverse ecological niches, often involving long-distance travel to access essential resources. Moreover, individual mobility is linked to social networking, the spread of innovations, and the persistence and diversity of material culture. By integrating various perspectives and methodologies, we aim to offer a more holistic understanding of Neandertal behavior, ecology, and their role in human evolution. This session also challenges outdated stereo-types that have long influenced popular perceptions of Neandertals. We seek to promote a more scientifically grounded, evidence-based view of these hominins, acknowledging their complexity and highlighting their signif-icance in human evolution. Through this approach, we aim to clarify Neandertals’ cognitive, social, and cultural capabilities, reinforcing their importance as a pivotal chapter in human ancestry.

CONTRIBUTION ABSTRACTS

688. SYSTEMATIC PRODUCTION OF NATURALLY BACKED “KNIVES” FROM 290 TO 110 THOUSAND YEARS AGO: EVIDENCE FROM SOUTHEAST SERBIA

Contribution format: Oral  
Contribution authors: Danilo Pajovic – Anđa Petrović – Dušan Mihailović (Faculty of Philosophy, University of Belgrade)

Naturally backed “knives” represent one of the long-lasting types of stone tools produced by the different homi-nin species. Emergence of this phenomenon starts in the Lower Palaeolithic and continues, in different forms, even today. Term “backed” refers to the either cortical or non-cortical surface, opposite the cutting/working edge, that is used to form a better grip, both when tools have been hand-held or hafted. These technological advances have enabled a more efficient use of the tools. The systematic production of these artefacts shows the developed cognitive abilities of the Chibanian (Middle Pleistocene) hominins. While the appearance of this phenomenon is now well documented across Western and Central Europe, there are no such studies in the Southeast of the conti-nent. This paper presents results of techno-morphological analysis of Velika Balanica (Layer 3), Mala Balanica (Layer 2) and Pešturina cave (Layer 4) assemblages. Dated respectively to 290 ka, 240 ka and 110 ka, these three assemblages represent the oldest record of systematic production of naturally backed artefacts in the Central Balkans. Results of the analysis are discussed regarding the raw materials used in backed artefact production, with the aim to shed more light of the methods employed, but also on the position of these artefacts within the techno-economic Neanderthal behaviour. Funding: This research has been supported by the NEEMO project of the Science Fund of the Republic of Serbia (7746827), and the MIRA project funded by the Social Sciences and Humanities Research Council of Canada SSHRC (895-2024-1005).

1204. NEW EVIDENCE FOR NEANDERTHAL OCCUPATION OF THE TEJO BASIN AT VILA VELHA DE RÓDÃO DURING THE LATE MIS 6

Contribution format: Oral  
Contribution authors: Carla Castro (Faculdade Ciências Sociais e Humanas, Universidade NOVA de Lisboa) – Telm. Pereira (Universidade Autónoma de Lisboa | Instituto Politécnico de Tomar | Centro de Geociências da Universidade de Coimbra | UNIARQ – Centro de Arqueologia da Universidade de Lisboa) – Mário Monteiro (EMERITA–Empresa Portuguesa de Arqueologia) – Francisc. Henrique. (EMERITA–Empresa Portuguesa de Arqueologia | AEAT – Associação de Estudos do Alto Tejo) – Emanuel Carvalho (EMERITA–Empresa

Portuguesa de Arqueologia) – David Nora (ICArEHB – Interdisciplinary Center of Archaeology and Human Behaviour, FCSH, Universidade do Algarve) – Marina Évora (ICArEHB – Interdisciplinary Center of Archaeology and Human Behaviour, FCSH, Universidade do Algarve | Departamento de Ciências Sociais e de Gestão, Universidade Aberta. Centro de Estudos Globais) – Catarina Gil (EMERITA–Empresa Portuguesa de Arqueologia) – Pedro Baptista (CEAACP - Universidade de Coimbra | AEAT – Associação de Estudos do Alto Tejo)

The Tejo River provides evidence of the long sequence of Middle Paleolithic occupation in the center of the Iberian Peninsula. At Vila Velha de Ródão, the Middle Paleolithic occupations occur from the top of T4 terrace to the lower division of T6, chronologically ranging from ca. 165 to 45 ka (MIS 6 to MIS 3). Monte da Revelada is an open-air site associated with correlative erosin ramp of T4, with an estimated age of between 155 and 135ka (late MIS 6). This work uses a techno-typological analysis to explore the different strategies from raw material acquisition to tool production. 623 artefacts have been studied from the basal layer (stratigraphic unit 27). The artefacts are predominantly made from local quartzite (493), along with quartz (113) chert (16) and schist (1). The assemblage is dominated by chips and other debris, that ensure the reliability of the context. Along with them, flakes are the most common technological category (412) and is noteworthy the small number of cores (2), although some artefacts having core-size dimensions and weight. The dorsal patterns of the blanks and cores indicate simple and discoidal methods, with Levallois being rare and Quina absent. Among the formal tools, there are typical and atypical Levallois flake, a Levallois point and pseudo-Levallois points, along with denticulates, notches and a diversity of sidescrapers. Blanks often have one of their edges marked by greater abrasion or micro-denticula-tion, suggesting their use. The artefacts are homogeneous, slightly eolised, with sporadic cases of heavier patina or double patina, suggesting their possible occasional transport from older sites exposed nearby. The overall differences between Monte da Revelada and other nearby sites, such as Cobrinhos or Foz do Enxarrique, are substantial, which may reflect the necessary adaptation to the rapid warming period of the MIS6-MIS5 transition.

2028. STONES IN TRANSIT: ANALYSING THE MOBILE TOOLKITS FROM LEVELS M AND P OF ABRIC ROMANÍ (CAPELLADES, SPAIN)

Contribution format: Oral  
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The relationship between mobility and lithic technology is a topic that has been extensively debated in the scien-tific literature, particularly in relation to the technological variability observed among Neanderthal groups and the complexity of knapping methods. A central aspect of this debate is the selection of mobile tools and personal gear according to transportation needs. This study aims to contribute to this debate by analysing the mobile tool-kits from levels M and P of the Abric Romaní (Capellades, Barcelona), with dates between 51.8 ±1.4 ka BP to 55.8 ±2.3 ka BP for level M, and between 54.24 ± 0.42 Ka BP to 55.0 ± 2.6 Ka BP for level P. Abric Romaní is an exceptional site for studying Neanderthal mobility due to its high stratigraphic resolution, which allows the identification of specific technological events. The mobile toolkits, identified using the Raw Material Units approach, along with refits and petrographic characterisation, indicate that these elements were already knapped when introduced to the site. The two levels present different technological contexts: level M, with a discoid and expedient technol-ogy, and level P, with a more complex Levallois and laminar technology. The objective of this study is to examine whether the composition of the mobile toolkits is predominantly influenced by the necessity for mobility or by the technological strategies employed within the respective contexts. This analysis will provide new insights into the interactions between lithic technology and mobility patterns in Neanderthal groups, enhancing our under-standing of how they adapted their behaviour to the needs of movement and subsistence.



501. CAN SIMPLE PHYSICAL MODELS AID IN THE SEARCH FOR LITHIC RAW MATERIALS? THE CASE OF VINALOPÓ AND JÚCAR BASINS

**Contribution format:** Oral  
**Contribution authors:** Nahum Chazarra (Universitat de València) – Jaime Cuevas-González (Universidad de Alicante) – Aleix Eixea (Universitat de València)

The search for lithic raw materials, a critical step for a better understanding of tool production, trade networks and mobility patterns, has long relied on intensive field surveys, data gathering from archaeological and geological data and regional geological insights. While effective, these methods are often costly, time-consuming and constrained by logistical challenges, particularly in understudied regions with complicated reliefs. We explore the potential of simple physical models to accelerate the identification of lithic raw material in the Vinalopó and Júcar Basins, where there are several Middle and Upper Paleolithic sites in which flint has been found as raw material but whose origin is still open to further research, due to the multiple possibilities offered by the primary outcrops. The strength of these models lies in their accessibility and adaptability. Unlike advanced computational methods requiring specialized software and powerful computers, simple physical models rely on basic equations, topographic maps and geological inputs to generate probabilistic maps according to a series of initial conditions. However, these models are not without limitations. Simplifications inherent to the physical model used may lead to false positives or overlooked deposits. Their accuracy depends on the quality of input data, but also lithic raw material procurement strategies employed by humans may complicate purely geological predictions, for example cultural factors like selective quarrying or long-distance trade that may defy physical deposition models. To mitigate these possible issues, hybrid approaches are recommended, combining physical models with archaeological data. In conclusion, while simple physical models cannot replace detailed fieldwork or geochemical analysis they can serve as a powerful tool to guide the search for lithic raw materials. By translating geological processes into predictive frameworks, they offer a balance between accuracy and efficiency that can help us uncover new insights into human prehistory while saving time and resources.

1903. TOOLS, MATERIALS, AND ADAPTATION: NEANDERTHAL HUNTING IN THE MIDDLE PLEISTOCENE

**Contribution format:** Oral  
**Contribution authors:** Annemieke Milks (University of Reading) – Michell. Bebbber (Kent State University) – Metin Eren (Kent State University) – Rob Hosfield (University of Reading) – Francy Kiabiya Ntamboudila (Marien Ngouabi University) – Sheina Lew-Levy (Durham University)

The emergence of Neanderthals in Eurasia during the Middle Pleistocene led to a shift in techno-behavioral strategies, notably in their use of materials for tool-making. Archaeological evidence indicates that wooden weapons were utilised by at least 400,000 BP, and likely much earlier. By the later Middle Pleistocene, Neanderthals had adopted innovations such as tool handles, glues, and stone-tipped spears. This diverse technological repertoire may have bolstered their ability to adapt to various environments through enhancing access to and increasing success with different hunting strategies, landscapes and prey. However, simpler technologies and materials did not disappear; they persisted into the Late Pleistocene and beyond. The reasons for the adoption of new materials, alongside the retention of older strategies, remain opaque. This paper presents findings from the interdisciplinary project, Reverse Engineering Pleistocene Spears, exploring varying weapon material and design strategies used by early Neanderthals during the Middle and early Late Pleistocene. We combine archaeological data with experimental research testing the performance of wooden versus stone-tipped weapons. Additionally, new ethno-archaeological research, based on semi-structured interviews with children, adolescents, and adult spear hunters in the Republic of the Congo, offers insight into the socio-cultural aspects of choices in weapon materials and design. While these analogical tools do not directly mirror Neanderthal decision-making, they can provide valuable context for understanding often overlooked factors in the emergence and transmission of new behaviours and technologies. Our results inform current views of flexibility in Neanderthal behaviour, materials, hunting strategies, and landscape use that challenge the traditional narratives of Neanderthals as rigid, inflexible big-game hunters.

1707. NEANDERTAL SPELEOTHEM BREAKAGE IN THE BRUNIQUÉL CAVE 176.5KA AGO

**Contribution format:** Oral  
**Contribution authors:** Sophie Verheyden (Royal Belgian Institute of Natural Sciences - RBINS) – Serge Delaby (UNESCO Global Geopark Famenne-Ardenne) – Kim Genuite (University of Bordeaux, PACEA) – Denise & Michel Soulier (La Mangrove) – Jacques Jaubert (University of Bordeaux, PACEA)

The Bruniquel cave contains circular structures of broken stalagmites dated 176,5 ka as published by J. Jaubert, S. Verheyden and co-authors in 2016 in Nature. Recently obtained ages for regrowths, i.e. more recent stalagmites sealing broken bases located behind the structures, in a sector now called “Magasin” (shop). These results

are entirely consistent with those of the structures (≈175 ka) and confirm that this area was indeed a supply site related to the mentioned structures. A large stalagmite (BR-Stm-9), which previously blocked the passage shortly before the “Salle de la Structure” grew during MIS 9 and the beginning of MIS 8, with regrowth seemingly starting around 172 ka. This regrowth seems to mark the onset of a climatic improvement. This, along with other stalagmites and regrowths dated around 175 ka, suggests a temperate climate when Neanderthals occupied the Bruniquel cave. The knowledge of the climatic condition is indeed important when tackling the functions of such structures.

2050. PREY CHOICE AND MOBILITY IN THE LATE MIDDLE PALEOLITHIC OF LAPA DO PICAREIRO

**Contribution format:** Oral  
**Contribution authors:** Milena Carvalho (ICArEHB) – Jonathan Haws (Dept. of Anthropology, University of Louisville | ICArEHB) – Emily Jones (Dept. of Anthropology, University of New Mexico)

This study examines Neanderthal subsistence strategies, mobility patterns, and territory use through zooarchaeological and taphonomic analyses of faunal remains from Levels JJ and KK at Lapa do Picareiro, Portugal. Archaeological evidence from Levels JJ and KK represents the latest Middle Paleolithic of the region. Situated in the ecologically varied Estremadura region, the site provides valuable insights into how Neanderthals adapted to shifting environmental conditions and resource distributions during Marine Isotope Stage 3. Taphonomic evidence indicates that human activity was the primary driver of assemblage formation, with additional contributions from carnivores and raptorial birds. The faunal assemblage is dominated by red deer (*Cervus elaphus*), supplemented by ibex (*Capra pyrenaica*), aurochs (*Bos primigenius*), and other ungulates, suggesting a diversified hunting strategy. Patterns of short-term site use point to localized mobility within a dynamic ecotonal landscape. Despite environmental fluctuations, particularly Heinrich Event 5, the findings underscore Neanderthal resilience in their subsistence behaviors, contributing to broader discussions on mobility and ecological flexibility in Middle Paleolithic Iberia.

1801. UNGULATE MOBILITY AND NEANDERTAL PREDATION AGENDA IN AXLOR LEVEL D (BASQUE COUNTRY, NORTH ATLANTIC IBERIA)

**Contribution format:** Oral  
**Contribution authors:** Antigone Uzunidis (ASM, UMR 5140, Univ Paul-Valéry, CNRS, MCC, F-34000, Montpellier. | Université de Paris 1 Panthéon-Sorbonne & UMR 7041 ArScAn-Archéologies Environnementales) – Audrey Roussel (ASM, UMR 5140, Univ Paul-Valéry, CNRS, MCC, F-34000, Montpellier) – Jesus González-Urquijo (IIIPC, Universidad de Cantabria) – Talía Lazuen (IIIPC, Universidad de Cantabria | Univ. Bordeaux, CNRS, MCC, PACEA, UMR 5199, F-33600)

As hunter-gatherers, Neanderthal groups were mobile, moving within their territory based on the availability of targeted resources. Their mobility was an integral part of their subsistence strategies. Level D of the Axlør site (MIS4, North-western Spain) is an ideal assemblage for reconstructing human habitats and seasonal mobility since, unlike most contemporary accumulations, that of Axlør is predominantly of anthropogenic origin. In this study we combined several proxies in order to reconstruct precisely Neanderthal predation agenda: zooarchaeology, tooth eruption patterns and dental meso- and microwear. The study of dental remains from Layer D reveals that 99.26% of the remains are attributable to herbivores. Among these, the most represented taxa are *Capra pyrenaica*, *Cervus elaphus*, and cf. *Bison priscus*. *Equus caballus*, *Capreolus capreolus*, *Rupicapra pyrenaica*, and *Stephanorhinus* cf. *hemitoechus* are also present. The analysis of herbivore diets indicates that regional and local habitats were largely dominated by dicots, corresponding to heathlands or forests with some grassy areas. Estimates of mortality periods and durations suggest that the site was occupied by Neanderthals only during the warm season during long or short repeated stays, with a slightly different hunting calendar depending on the species. The site was likely geographically situated at the intersection of the seasonal movements of several ungulate species, particularly in autumn. Thus, the ecological characteristics of Axlør Level D were especially favorable for animal-derived resources procurement by predators, in this case, Neanderthals.

1442. NEW HOMININ DENTAL REMAINS FROM THE MIDDLE PLEISTOCENE DEPOSITS OF VELIKA BALANICA, SERBIA

**Contribution format:** Oral  
**Contribution authors:** Predrag Radovic (Department of Archaeology, Faculty of Philosophy, University of Belgrade) – Joshua Lindal (Department of Anthropology, University of Winnipeg) – Petar Milovanovic (Center of Bone Biology, Faculty of Medicine, University of Belgrade) – Dušan Mihailović (Department of Archaeology, Faculty of Philosophy, University of Belgrade) – Mirjana Roksandic (Department of Anthropology, University of Winnipeg)



Dated to 285 ± 34 ka and 295 ± 74 ka via thermoluminescence, Layer 3a of Velika Balanica cave (Sićevo Gorge, southern Serbia) previously yielded dental remains of at least two individuals (BH-2, BH-3, BH-4, and BH-5) attributed to early Neanderthals. Here, we present three new permanent teeth—a lower lateral incisor (BH-7), an upper central incisor (BH-8), and a lower third molar (BH-15)—identified in Layers 3a and 3b during recent laboratory and field research. The massive and robust structure of the BH-7 and BH-8 crowns and roots aligns with a dental morphological pattern characteristic of Eurasian Pleistocene hominins. Moreover, BH-8 displays linear enamel hypoplasia, an important marker of systemic physiological stress during childhood. Despite some damage to the crown, the enamel-dentine junction of the BH-15 molar shows a continuous middle trigonid crest—a trait regarded as typical of the Neanderthal lineage. The morphological and metric features of the new dental specimens align with previous findings, indicating the presence of an early Neanderthal population around 300 ka at Velika Balanica.

2158. DIFFERENCES OF RAW MATERIAL PROCUREMENT IN THE MIDDLE PALAEOLITHIC ASSEMBLAGES FROM THE CSERHÁT REGION (NORTHERN HUNGARY)

Contribution format: Poster  
Contribution authors: András Markó (University of Szeged)

During the past 25 years a number of Middle Palaeolithic assemblages with leaf shaped tools were recognised in the Cserhát mountains (Northern Hungary). During the excavations at Vanyarc, Galgagyörk and Szécsénke the artefacts were documented in undisturbed artefact-bearing layers. In the presentation we discuss the typological aspects and raw material composition of these closed assemblages. The Vanyarc site seems to be unique as one third of the nearly 2000 lithics were made of extralocal metarhyolite raw material having a single source at a distance of 95 km from the archaeological site. In typological point of view, the assemblage is dominated by the leaf shaped tools, including point fragments. Based on the analysis of the lithic artefacts, the site is interpreted as a short-term hunting station. In the side-scraper dominated assemblage from Galgagyörk, beside the metarhyolite, various obsidian types and the very low quality local hydrothermal rocks and andesite are well represented. In our view the site represent the occupation of a special ‘pioneer’ groups who had no information concerning the potential siliceous rock in this part of the Carpathian basin. Finally, the excavated assemblage from Szécsénke is largely dominated by the local or mesolocal hydrothermal rocks, while metarhyolie is represented by a few single pieces. The most numerous groups of the retouched tools are the end-scrapers with a few leaf shaped implements. As a total, in our view these three documented localities lying on a small micro region seems to represent the ‘leaf point group’ (Blattspitzengruppe) with a Central European distribution, which is suggested instead of the ‘Szeletian’ having problematic documentation and typological composition of several industries and complex taphonomic history with unclear processes connected to the site formation.

172 EXPLORING THE MARGINS: ARCHAEOLOGY OF REMOTE AND RESOURCE-RICH LANDSCAPES

Session theme: 1. On artefacts and beyond  
Session format: Regular session  
Session keywords: Remoteness, Outlands, Mountain Archaeology, Polar Archaeology, Wetlands Archaeology, Forest Archaeology  
Session organisers: David González-Álvarez (Institute of Heritage Sciences (INCIPIT-CSIC)) – Andreas Hennius (Upplandsmuseet) – Maria Ximena Senatore (Institute of Heritage Sciences (INCIPIT-CSIC)) – Daniela De Simone (Ghent University) – Sergio Escribano-Ruiz (University of the Basque Country (UPV/EHU))

SESSION ABSTRACT

This session aims to gather case studies and theoretical proposals that address the concepts of remoteness and outlands. Remoteness is defined as a state of being distanced from, or lacking connection to, central cores. Geographically remote areas—such as the driest deserts, highest mountains, densest jungles, most isolated islands, freezing polar regions, and the edges of historical maps—have rarely been at the forefront of archaeological research. The concept of outlands refers to regions beyond the primary centres of settlement and agriculture, often encompassing forested areas, mountains, coastal zones, and open seas. These diverse landscapes, generally unsuitable for cultivation, have historically served various economic and cultural functions. Outlands also denote the resources and raw materials sourced from these areas, such as wood, iron, gemstones, meat, furs, and blubber—commodities crucial to broader networks and economies. In archaeology, studies of remote lands and outlands have often been sidelined, with global historical processes largely interpreted from central or urban perspectives. As a result, these allegedly distant and marginal regions have been overlooked in discussions of major historical narratives. This session seeks to challenge this oversight, demonstrating that we can engage

meaningfully with global themes and contribute to key narratives worldwide by focusing on remote lands and outlands. We therefore invite contributions that examine remote lands or outlands in relation to significant historical processes, including but not limited to the following:

- Revisiting centre-periphery models in archaeology
- Critically examining Big History
- Analysing global migrations and human expansions into these areas
- Considering remoteness and outlands through the lenses of connectivity and globalization
- Questioning the complementarity of non-agrarian production systems
- Examining the relationship between market-oriented production in these regions and capitalism
- Exploring the otherness and livelihood strategies of people from these lands

CONTRIBUTION ABSTRACTS

533. SCANDINAVIAN OUTLANDS - NEITHER REMOTE OR MARGINAL

Contribution format: Oral  
Contribution authors: Andreas Hennius (Stiftelsen Upplandsmuseet)

The Scandinavian term Utmark—translated as Outlands—refers to areas beyond the cultivated fields and meadows of the home farm, encompassing the non-agrarian landscape such as forests, mountains and coastal zones. These landscapes could be near or far from agrarian regions, and their resources were exploited either as part of the farming community’s annual work cycle or by people residing permanently in these forested areas. Crucially, the Outlands were unsuitable for extensive agriculture and were instead utilised for other valuable resources. For a long time, research focused primarily on central agrarian regions—settlements and burial sites—while the Outlands remained largely overlooked. However, recent studies within Outland discourse have underscored their significance as resource-rich landscapes that played a crucial role in societal development. As early as the 4th to 6th centuries AD, large-scale production of iron and tar was initiated. This, alongside intensified hunting of terrestrial and marine mammals and the exploitation of animal products such as antlers and furs, facilitated the expansion of long-distance trade, which flourished during the Viking Age. In return, exotic goods from distant regions—including garnets, elephant ivory, cowrie shells, amethyst, and silk—began to flow into Scandinavia. This paper provides an overview of ongoing research on the exploitation and extraction of the Outlands from a Scandinavian perspective. It highlights the importance of non-agrarian production and challenges the traditional notions of marginality, remoteness and the very concept of “Outness” embedded in the term Outlands.

2368. REFRAMING REMOTENESS: THE NILGIRI MOUNTAINS AND THE ARCHAEOLOGY OF UPLAND FORESTS

Contribution format: Oral  
Contribution authors: c(Ghent University)

The Nilgiri Mountains, a region of montane subtropical forests in South India and home to indigenous communities, have long been marginalised in archaeological discourse, regarded as spatially and culturally remote and thus peripheral to the historical processes shaping the agrarian and urban societies of the plains. Colonial narratives have reinforced the notion that forest-dwelling communities existed outside history, reducing them to ethnographic subjects rather than active agents of cultural transformations. Drawing on recent fieldwork and archival research, this paper examines the megalithic landscapes of the Nilgiris through indigenous spatial and temporal frameworks, presenting a decolonial perspective that challenges Eurocentric historical models. Despite providing crucial evidence of long-term habitation and ritual continuity, these sites remain understudied within broader South Asian archaeology. By addressing the historiographical marginalisation of Indian forested regions, this paper contributes to wider discussions on remoteness, otherness, and alternative histories in archaeology. It highlights the significance of forest archaeology in redefining marginality and demonstrates that upland landscapes were integral to regional and transregional interactions rather than isolated peripheries.

1235. RUNNING TO THE HILLS: FORTIFIED HILLTOP SITES IN THE DIOECESIS DACIAE (4TH–7TH C.)

Contribution format: Oral  
Contribution authors: Samira Fischer (FAU Erlangen-Nürnberg | JGU Mainz)

In the 6th century, a change in the settlement pattern can be observed in the central Balkans. Numerous hilltop fortifications appeared in the hinterland of the Danube Limes. Some of these fortifications were situated on hills along the main traffic routes, while others were deep in the mountains, far from the main roads. Archaeological research interprets this move to higher areas primarily as a protective response to the increasing invasions of various barbarian groups, such as the Avars and Slavs, who threatened the Eastern Roman provinces. This interpretation is often based on Procopius’ accounts of construction activities under Emperor Justinian I (527–565),



who established a network of fortifications to defend Eastern Roman territory. However, the exact nature of these sites remains a topic of debate. Were they fortified villages of the local population, refuges, military forts, installations protecting mining activities in ore-rich regions, regional centres of power, or something else entirely? What is certain is that people had to adapt to the challenges of these locations: difficult access, poor soil quality for agriculture, problematic water supply, and the risk of erosion all played significant roles. The fortified hilltop sites of the Dioecesis Daciae can be understood as an expression of the transformation of the Late Roman Empire, in which strategies, structures, and social relations were reconfigured in response to internal and external challenges. This paper aims to highlight the diversity and adaptability of human settlement patterns in times of crisis.

179. ORGANISING THE INSULAR LANDSCAPE: INFIELDS AND OUTFIELDS ON THE ÅLAND ISLANDS

**Contribution format:** Oral  
**Contribution authors:** Kristin Ilves – Petter Larsson (University of Helsinki)

This presentation examines the interplay between remoteness, marginal landscapes, and agrarian systems on the Åland Island during the Nordic Late Iron Age and Medieval period. Drawing on pollen analyses from five lakes – ranging from densely settled areas to topographically and geographically marginal sites – we uncover nuanced patterns of land use and resource management that are discussed through the lens of infields and outfields. The Åland Islands provide an interesting opportunity to expand theoretical discussions on the infields-outfields concept to the insular landscapes. Outfield utilisation on islands is largely underexplored as these regions are in itself considered “outlandish”. Research on subsistence practices in Åland and on islands more generally is often approached from a maritime perspective, highlighting activities such as sealing, fishing and fowling. By applying the infields and outfields framework, we aim to advance the understanding of insular land use organisation, also moving beyond site-specific analyses to reveal broader trends across Åland. Furthermore, we examine fluctuations and transformations in land use on Åland in relation to external events, interpreting signals of landscape utilisation within the context of known crises, such as the mid-6th century climate crisis and the Black Death of the mid-14th century, and our findings are further contextualised within the broader framework of societal changes documented in the Baltic Sea region during the same period.

2320. MATTER AND MEANING IN ANTARCTICA: RETHINKING A REMOTE CONTINENT

**Contribution format:** Oral  
**Contribution authors:** Maria Senatore (Institute of Heritage Sciences (INCIPIT-CSIC))

Antarctica is considered one of the most remote places on Earth. It is often viewed as an exceptional place, with its isolation perceived as an inherent quality of its geography and harsh environment. Distance and challenging accessibility have reinforced Antarctica’s prevailing image as the last frontier of human exploration. However, this perception of remoteness has been shaped through cultural narratives that construct and reinforce its meaning. In this presentation, I argue that material objects have played a crucial role in shaping and sustaining these narratives of Antarctica. By examining three case studies from contemporary Antarctica, I explore how often-overlooked material objects influence political dynamics, historical memory, and environmental discourse, as well as the cultural and social processes of inhabiting the continent. Because Antarctica is commonly imagined as a place devoid of human presence and material culture, this presentation highlights their significance, challenging the narratives that disconnect Antarctica from broader historical, social, and cultural processes.

356. URBANITY IN THE OUTLANDS. BRINGING THE OUTLAND TO THE TOWN AND THE TOWN TO THE OUTLAND

**Contribution format:** Oral  
**Contribution authors:** Eva Svensson (Karlstad University)

Outland use, that is use of various resources in outlying areas, was pursued for several, often intersecting, reasons; eg. adding to the agrarian subsistence of the farm, producing commodities for trade, and as a means for spreading risks. The people engaged in outland use could belong to different groups, but here the focus will be on outland using forest peasants. The commercial signature was always present among the forest peasants, and they moved between production sites in the distant outlands and central trading places – in medieval Scandinavia mostly towns. So far, in Scandinavian research, we have been fairly successful in detecting and analysing the production of commodities based on outland resources – at least production leaving traces in the landscape. We are struggling more with reconstructing trade routes and networks, although various natural science methods enabling analyses of extraction origin for goods recovered in eg. urban environments and graves are making good progress. So far, also less attention has been paid to what the forest peasants retrieved from the markets and brought back to their farmsteads. A number of excavated medieval farmsteads in Scandinavia will be examined in this paper in order to discuss what the medieval, Scandinavian forest peasants brought back from the towns to their farmsteads; goods as well as ideas. The paper will also examine how the forest peasants’ interaction with the

towns as well as the outlands shaped their daily lives and strategies at the farmsteads.

794. CONCEPTUALISING MOUNTAINS AS MARGINAL OR REMOTE LANDSCAPES MISREPRESENTS THEIR ARCHAEOLOGICAL UNDERSTANDING: RECENT RESEARCH ON THE REGION OF BABIA (LEÓN, SPAIN)

**Contribution format:** Oral  
**Contribution authors:** David González-Álvarez (Institute of Heritage Sciences (INCIPIT-CSIC))

When considering mountainous landscapes, it is important to avoid oversimplifying their nature as ‘marginal’ or ‘remote’ areas. The diachronic anthropogenic impact on suburban and coastal areas in Europe is well-documented, yet naturalistic views regarding mountains remain prevalent. Alpine and subalpine areas are often considered ‘nature refugees’, where wildlife finds shelter beyond the scope of human action. Moreover, contemporary discourses on the rewilding and the rural decline in Europe serve to perpetuate these naturalistic imaginaries. However, palaeoenvironmental studies and recent archaeological research highlight the profound impact of human activities on the formation of upland landscapes since the Late Prehistory. Consequently, mountains represent some of the most evident scenarios for challenging dichotomist perceptions of landscapes, transcending the ‘nature/culture divide’. Archaeological research in the Cantabrian Mountains (NW Iberia) has demonstrated the complexity of these upland environments. It emphasises their nodal role as places for encounters and highlights their potential to host abundant resources, which are sometimes only accessible to their inhabitants seasonally. The long-term landscape formation processes in the region of Babia (León, Spain) are under study by our research team, aiming to understand changes and continuities in landscape biographies. The investigations undertaken involve an examination of the socio-environmental relations established by local societies with their surroundings. This involves an analysis of both material and intangible traits that mediate their experiences and perceptions. The preliminary outcomes of this research line offer a foundation for broader reflections on the ongoing touristification and heritagization processes of rural landscapes in these mountains. Some of these processes may serve to perpetuate misconceptions, such as the so-called ‘nature/culture divide’. However, through the rigorous lens of archaeological research and the interdisciplinary understanding of cultural landscapes, these misconceptions can be systematically deconstructed, facilitating a more nuanced and informed understanding of the dynamics between humans and their environments.

1091. MARINE RESOURCE EXPLOITATION FROM THE MIGRATION PERIOD UNTIL THE MIDDLE AGES: RISE AND ABANDONMENT OF SEASONAL SETTLEMENTS IN SOUTHWESTERN NORWAY

**Contribution format:** Oral  
**Contribution authors:** William Van Hemelryck (Universitetet i Bergen)

This research reassesses seasonal settlements found along the coast of Southwestern Norway. By revisiting the finds from previous excavations and by analyzing the sites in their regional and social context, this research explores marine resource exploitation and its relation to societal change during the Viking Age and the Middle Ages. The sites under investigation are located on rocky islands along Southwestern Norway’s outer coast. The house remains tend to be clustered along narrow inlets or small, sandy beaches, sheltering them from the wind and providing safe landing places for boats. Although most of these structures have not been investigated, archaeological excavations of some of the tufts indicate that the sites were first occupied during the Roman Iron Age. Activities increased dramatically from the second half of the Migration Period onwards, until the sites were eventually abandoned by the end of the Early Middle Ages. Although these sites have received little scholarly attention, the modern consensus is that they were organized by local chieftains, and that the reason for their abandonment needs to be sought in the changed socio-political reality in the region. Yet, the moment of their decline is quite remarkable, since it coincides with the rise of Bergen as a city and as a nodal point for the international stockfish trade. Although competition with the Lofoten fisheries has been named as a contributing factor, it remains unexpected that stations for marine resources were abandoned at a time when the international demand for these resources was rising. By focusing on seasonal settlements in liminal landscapes, the research breaks with the more traditional farm-centered view which has been prominent in Norwegian archaeology. The findings will contribute to our understanding of the relation between marine resource exploitation and societal change during the Viking Age and Middle Ages.

891. IN THE MARGINS OF THE WESTERN PYRENEES: DEVELOPING CONNECTIONS ON THE PYRENEAN PERIPHERY (ZALDUA, AURITZ/BURGUETE, NAVARRE)

**Contribution format:** Oral  
**Contribution authors:** Oihane Mendizabal Sandonís (Université de Pau et des Pays de l’Adour (UPPA) | University of the Basque Country (EHU/UPV) | Aranzadi Science Society) – Elena Torregaray Pagola (University of the Basque Country (EHU/UPV))

The western Pyrenees has been a peripheral territory during most of the historical periods and Antiquity is no



exception. Far from the Mediterranean Sea, the most important cities and the main fluvial corridors (both the Ebro and the Garonne), this territory has traditionally been little studied, to the extent that the Roman impact of these valleys was questioned for decades in the 20th century. However, since 2011 new research projects have focused on this a priori ‘marginal’ territory. One of the areas studied comprised a secondary trans-Pyrenean road together with the urban and non-urban elements that surrounded and characterised it. Thanks to it, new sites could be identified, including urban centres close to the mountain, as is the case of Zaldúa. They were related to the economic resources of the area, far from the traditional agricultural model of the mediterranean triad. Its development is giving us an insight into a specific type of economic exploitation, but of strategic importance for the territorial networking of the Roman Empire. In this context, the aim of this communication is to present some examples of the socio-economic particularities identified in the small town of Zaldúa. It clearly shows the development of a particular model of territorial exploitation that combines the basic features of the Roman urban model with the needs of a territory with specific conditions. Therefore, our intention is to present this Pyrenean site as a contribution to the creation of alternative models to the Roman ideal. So the trans-Pyrenean dynamics, which have often been interpreted as evidence of the limited impact of Roman culture, are, on the contrary, the sign of a particular type of exploitation. It constitutes an essential complement and challenges the model that has been dominant in historiography for years on the general characterisation of spaces in the Empire.

1257. SURFING THE MARGINS. MARINE AND FOREST LANDSCAPE EXPLOITATION IN NORTHERN BASQUE COUNTRY

**Contribution format:** Oral  
**Contribution authors:** Sergio Escribano-Ruiz (University of the Basque Country (UPV/EHU))

When the Romans arrived in what would later be called the Basque Country, they divided the territory into two distinct regions based on the landscape. The southern part, suitable for agriculture, was known as Ager, while the northern, less arable region was designated as Saltus. Each area underwent different forms of land management and material interventions. This division also established a hierarchical relationship, with the Ager serving as the primary economic driver and maintaining stronger ties to Rome. This dichotomy persisted into the medieval period, evolving over time until industrialization reversed the dynamic. Through this study, we aim to explore a broad historical period (10th–19th centuries) to examine how non-agrarian activities played a central role in both local and global economies. We will focus on case studies involving people from the northern Basque Country, particularly those engaged in activities with archaeologically attested traces, such as medieval ironworking and millstone quarrying. Situated between land and sea, these communities also played a crucial role in Iberian trade. From the late medieval period, they participated in Irish fisheries, and by the early modern era, they were investing in Canadian fisheries, accumulating wealth in the process. In the 19th and 20th centuries, many young Basque people migrated to the Americas to work as shepherds, contributing significantly to the success of the U.S. textile industry. Viewed as a whole, these case studies offer a compelling case of marine and forest landscape exploitation, highlighting the significance of non-agrarian, remote areas in global economic networks—key developments that ultimately contributed to the rise of capitalism.

173 SHAPING TOMORROW’S HERITAGE KEEPERS: THE ROLE OF YOUTH ENGAGEMENT IN PRESERVING ARCHAEOLOGICAL HERITAGE

**Session theme:** 6. Intertwining archaeology, heritage, and museums  
**Session format:** Regular session  
**Session keywords:** Youth engagement, Archaeological heritage, Cross-curricular education, Museums, Cultural Routes of the Council of Europe, Prehistory  
**Session organisers:** Marta Rakvin – Jacqueline Balen (Archaeological Museum in Zagreb | Iron Age Danube Route Association) – Szilvia Fábián (Hungarian National Museum | Iron Age Danube Route Association) – Petra Stipančić (Dolenjska Museum Novo mesto | Iron Age Danube Route Association)

SESSION ABSTRACT

The preservation of cultural and archaeological heritage is intrinsically linked to public understanding. Educating young people about cultural and archaeological heritage is vital for fostering appreciation and respect for their shared past. However, school curricula often underrepresent or omit these subjects, particularly prehistoric periods and context-based heritage learning. Efforts to teach young people about archaeological topics and their heritage, often solely depend on the enthusiasm of their teachers, who frequently lack sufficient resources to perform extracurricular learning activities. This can have significant consequences for the long-term preservation of heritage, as this imbalance can limit future public engagement with archaeological sites and museums,

ultimately hindering efforts to protect and conserve these invaluable resources. With prehistoric and archaeological topics largely missing from the school curricula, museums have already taken on the leading role in providing knowledge about these periods to children and young adults. Therefore, the youth involvement and educational work done by the heritage institutions, as well as other heritage preservation, presentation and promotion programmes and initiatives (such as Cultural Routes of the CoE, Europa Nostra, European Heritage Days, European Archaeological Days...etc.) is essential for fostering archaeological heritage in days to come. Outreach programmes can enrich children’s engagement with archaeology, and provide the context-based approach often missing from formal classroom teaching. By involving young people in archaeological projects, volunteer programs, and digital heritage initiatives, we can cultivate a new generation of heritage stewards. In this session we are looking for papers which present challenges, approaches, initiatives and best practices in youth involvement and education, development of new programmes, (particularly programmes enhanced through the use of digital technologies), as well as papers focusing on collaborative approaches involving schools, museums, and other heritage institutions, as well as organizations and experts which work on strategical approach and policies to integrating archaeological heritage into curricula.

CONTRIBUTION ABSTRACTS

2202. CONNECTING PAST AND PRESENT: INSPIRING YOUNG MINDS THROUGH PREHISTORIC OUTREACH

**Contribution format:** Oral  
**Contribution authors:** Ana Abrunhosa (IPHES-CERCA - Institut Català de Paleoecologia Humana i Evolució Social | Universitat Rovira i Virgili (URV), Departament d’Història i Història de l’Art | ICaREHB Interdisciplinary Center for Archaeology and Evolution of Human Behaviour, UAlg) – Joana Rebelo (Escola Montessori do Porto) – Andrea Alías Sotos (IPHES-CERCA - Institut Català de Paleoecologia Humana i Evolució Social)

Outreach science activities and heritage education play a key role in developing curiosity and a sense of responsibility in young learners. By engaging students in hands-on activities such as recreating ancient tools, making prehistoric art, and exploring archaeological sites, prehistory becomes both exciting and accessible. These activities foster critical thinking and a deeper understanding of early human life while teaching children the importance of protecting cultural heritage. Understanding the ways early humans lived and adapted encourages respect for diverse cultures and environments, highlighting the value of conservation and sustainability. While Spain has established successful outreach programs that actively involve diverse communities in prehistoric research, Portugal’s efforts in this area remain limited. Although Portugal possesses significant archaeological heritage, outreach initiatives tend to focus on large events like European Research Night, with fewer continuous programs that integrate with local communities. This creates a gap in public engagement, particularly in schools where teachers face challenges in accessing age-appropriate educational materials about prehistory. Educators, especially those working with young children (ages 6-9), often struggle to find resources that balance scientific accuracy with pedagogical needs. To address this, there is a pressing need to expand outreach initiatives in Portugal, making prehistoric research more accessible and ensuring that educational resources are tailored to younger audiences. A collaboration between researchers and teachers can help bridge this gap, offering engaging, age-appropriate content. Here we present our experience applying outreach practices at a Montessori school in Portugal, demonstrating the potential for such cross-border collaboration. It showed that well-planned outreach activities, with active teacher participation, can inspire curiosity and foster meaningful learning experiences. Prioritizing the dissemination of accessible resources would ensure that prehistory is effectively brought to life for future generations in Portugal

787. VOLUNTEERING FOR HERITAGE: THE FIRST ARCHAEOLOGICAL EXCAVATIONS OF THE IVANIĆ FORTRESS (IVANIĆ-GRAD, CROATIA)

**Contribution format:** Oral  
**Contribution authors:** Laura Šejic (Friends of Heritage Association | University of Zagreb, Faculty of Humanities and Social Sciences)

In 2023 and 2024, the Friends of Heritage Association, in collaboration with the Ivanić-Grad City Museum and the European Heritage Volunteers organization, organized international volunteer workshops on archaeological excavations in Ivanić-Grad, Croatia. These workshops brought together emerging young heritage professionals from around the world, providing them with a unique opportunity for hands-on archaeological research. As the only EHV workshop focused on archaeological excavation during this period, the initiative played a pivotal role in both advancing participants’ professional expertise and promoting the historical significance of the site. Significantly, this initiative marked the first-ever archaeological excavations in Ivanić-Grad. The archaeological finds confirmed continuous habitation of the wooden fortress between the 16th and 18th centuries, a historical



assertion previously supported only by written records. Moreover, the extensive collection of artifacts will enrich the newly established Archaeological Collection of the City Museum. These discoveries underscore the importance of continued archaeological research to further explore, preserve, and interpret the site’s historical legacy. The training course provided a comprehensive introduction to archaeological excavations, with the primary objective of defining the stratigraphic layers within the fortress. Practical activities began with cartographic and archival research, followed by systematic excavations, and processing of archaeological finds. The workshops concluded with report writing and research presentations, ensuring a well-rounded academic and practical experience for participants. Throughout the course, volunteers gained in-depth knowledge of archaeological methodologies, including field documentation and artifact handling, while also exploring the cultural heritage of Ivanić-Grad and Zagreb County. A key component of the training was community engagement, fostering international cooperation, and reinforcing local heritage research efforts. The presence of participants helped raise awareness of the local heritage, promote youth involvement in heritage preservation and promotion, and inspire local young people to participate in international training programs such as the European Heritage Volunteers programme.

1820. ENGAGING WITH THE FUTURE CUSTODIANS OF OUR ARCHAEOLOGICAL HERITAGE IN NORTHERN IRELAND

Contribution format: Oral  
Contribution authors: Colm Donnelly – Eileen Murphy (Queen’s University Belfast)

Youth engagement and educational work is an established tradition within Archaeology at Queen’s University Belfast, notably through the work of the Belfast branch of the Council for British Archaeology’s Young Archaeologists Club, established in 2006 but also through the direct participation of school groups in the community excavations undertaken by the university’s Centre for Community Archaeology (CCA), with an average of 650 young people working with the unit each year between 201. and 2023. In addition, in 2019 and 2024 the CCA contributed their “Discovering the Past” schools programme as part of the successful application by the Hill of the O’Neill Visitor Centre in Dungannon to the Heritage Education Trust’s Sandford Awards. Building on these successes the CCA has now obtained major funding from the UK National Lottery Heritage Fund to undertake a public-facing three-year project (2024-2026), The Community Archaeology Programme Northern Ireland (CAPNI), with school engagement a central component of the work, delivered through school hubs, school visits and the opportunity for schools to take part in archaeological excavations. The lecture will review the work completed in 2024 when 1,543 school children across Northern Ireland participated in CAPNI activities.

471. MUSEUM MAKERS: CURATING THE CORINTH COLLECTIONS FROM THE CLASSROOM

Contribution format: Oral  
Contribution authors: Taylor Cwikla (ASCSA Corinth Excavations)

Thanks to the support of the Steinmetz Family Foundation, ASCSA Corinth Excavations has launched an educational outreach initiative to invite classrooms around the world to curate displays of ancient artifacts to be featured in public-facing educational programming delivered by the Steinmetz Fellow in Ancient Corinth, Greece. The “Museum Maker” program promotes student-led inquiry as it introduces the process of curating an archaeological exhibit. Students become curators as they navigate the ascsa.net online research database to explore the Corinth collections and collaborate with their peers to determine the direction of their display. For each object selected for exhibition, students prepare a label incorporating contextual data from the excavation database as well as additional content that further explains the reason for that object’s inclusion in the overall display. Once a teacher submits a final list of artifacts, labels, and a curators’ note for their class, the display is assembled and the group is invited to discuss their handiwork during a personalized educational program organized by the Steinmetz Fellow. By involving students in the curatorial process and inviting them to create an exhibit of their own, we hope to enrich their learning experiences and demonstrate the impact their efforts can have in the public sphere. By involving students as museum makers in the classroom we encourage them to grow into engaging and conscientious heritage keepers in the future.

886. GOING BACK TO SCHOOL!

Contribution format: Oral  
Contribution authors: Jacqueline Balen (Archaeological museum in Zagreb) – Kristina Rupert (Zlatni Papuk Tourist board) – Ana Solter (Archaeological museum in Zagreb)

Main goal of this lecture is to present two programs which have been developed in the Požega Valley, Croatia which are intended for elementary and high school pupils. Programs has several objectives. 1. make a step forward in the availability of activities outside the big centres 2. bring archaeology (of the homeland!) closer to the student population 3. enable the adoption of new content through interaction and the experience of own participation 4. develop a model for the introduction of archaeology as an extracurricular activity 5. raise the level of awareness

of heritage as a whole 6) develop alternative teaching models with the aim of better understanding the interdisciplinarity of archaeology The significance of the program conceived in this way lies in the fact that only in this way can it be expected that the question of introducing archaeology as a supplementary activity in schools will be approached in an empirical way and avoid the pitfalls of excessive reliance on theoretical elaborations devoid of practical checks, so often present in (failed) attempts organizing activities like these.

604. MUSEUM EDUCATIONAL PROGRAM “LET’S DIG INTO THE PAST”

Contribution format: Oral  
Contribution authors: Kristina Yanakieva (Rousse Regional Museum of History | Iron Age Danube Route Association)

The purpose of this brief summary is to present a cultural and educational program “Let’s dig into the past”, successfully implemented in the museum pedagogical practice of the Regional Historical Museum - Ruse. It represents an innovative form of extracurricular education consistent with the school programme and for the benefit of children from 1 to 5 grades, their teachers and families. It offers free and informal communication with specialists in various fields of cultural heritage, both from local museums and galleries, and in partnership with scientific institutions in the country. The focus is on the local prehistoric archaeological heritage, as part of the national and world cultural wealth. The educational program is structured in modules presenting different points of view, that of the prehistoric man and that of the archaeologist-researcher. The emphasis is on the experience of the children who participate in the construction of a shelter from mammoth bones, making tools and clay vessels. The second part is discovery, and the children are put in the “shoes” of the archaeologist and participate in excavations, where they discover objects specially made according to samples from the museum showcases and explore them. “Let’s dig into the past” is a flexible and mobile program that travels and easily reaches new audiences. The presentations and worksheets are freely accessible on social networks, which also allows for independent use of the resources. It combines classic elements of museum educational practices – work in the exhibition spaces, as well as practical activities in newly built partner educational spaces. The program engages the audience with participation in competitions and exhibitions. This provokes creative and abstract thinking, key to revealing full-fledged individual intellectual abilities. Children create a lasting interest in the past and acquire significant knowledge, a prerequisite for developing long-term civic sensitivity to cultural heritage.

849. IRON AGE ARCHAEOLOGY INVOLVING SCHOOL CHILDREN

Contribution format: Oral  
Contribution authors: Petra Stipancic (Dolenjski muzej Novo mesto)

Dolenjski Muzej Novo Mesto is preparing a special programme for the Situlae Festival for school children of the 5th class from the Dolenjska region. For the first time we prepared it in 2023 and 430 children visited Situlae Festival, which celebrates the Iron Age life and cuisine. In 2024 we had 484 pupils. The whole programme is dedicated to presenting Early Iron Age life, costumes, culinary, spiritual life, sports and music. The entire event is at the prehistoric settlement of Marof and lasts from 9 a.m. to 1 p.m. This is a cultural-sports-natural history day. They actively participated in all activities. All our activities first have a short presentation, why we do it and how we know it. In the foreground, there are scenes from richly decorated Iron Age bronze vessels, known as situlae. Children have 30 minutes at each station. We have external and also associates from our museum for each station. The program consists of 6 stations where they are introduced to different activities. 1. PRINCELY COURT 2. MUSIC AND DANCE 3. CULINAR. 4. POTTERY 5. CRAFTS 6. SPORT. Our main work and role is to develop common consciousness of meaning of heritage, on which national identity is standing and to help growing museum public from the earliest time. As a method of experiential interpretation (living history) it allows us to relive the past with the help of games and costumes.

2140. LIVING PASTS, EXPLORING FUTURES: “BEYOND THE WALLS” – A PAN-EUROPEAN COURSE IN BUDAPEST

Contribution format: Poster  
Contribution authors: Alexandra Anders (Institute of Archaeological Sciences, Eötvös Loránd University) – Orsolya Réthelyi (Department of Netherlandic Studies, Eötvös Loránd University) – Dániel Veress (Atelier Department for Interdisciplinary History, Eötvös Loránd University)

‘Living pasts, Exploring futures’ is a course that has been offered since 2019 at Utrecht University (Netherlands). A team of teachers wanted to educate differently than before, thus this new course is characterised by multi- and transdisciplinary approaches. The content of the course is driven by co-creation, with a community-engaged outcome. In the seminars, students explore the history of Utrecht through their own research and that of their peers. They are asked to select, research and work on local history topics using new media. Rather than producing



a traditional seminar paper, the course’s output takes the form of a “prototype,” which could be an object, a game, a podcast, or an app. In 2023, a team of teachers at ELTE in Budapest (Hungary) was introduced to the concept of the Living pasts course through CHARM-EU, which is an alliance of nine European universities with the symbolic aim of creating a new European university, both on- and offline. In the autumn semester 2024-25, we decided to implement this new course type with the theme ‘Beyond the walls’. We chose the medieval city wall of Pest, which, despite being largely invisible today, still defines the internal structure of the city. Students from Utrecht University worked together with students of ELTE during this semester. We organised walkings and visits to the city archive. Experts and stakeholders form museums and NGOs supported the work of the ELTE teachers. The poster will show the milestones of the course, the challenges faced, the results and the most remarkable moments. We believe that this new initiative will inspire other universities to adopt this form of sensitization to heritage and archaeology.

174 CURRENT RESEARCH IN THE AMERICAS. BEYOND ARTIFACTS: INDIGENOUS NARRATIVES AND ARCHEOLOGICAL CO-CREATION IN THE AMERICAS

Session theme: 1. On artefacts and beyond  
Session format: Regular session  
Session keywords: American archaeology, Indigenous knowledge , Heritage ,  
Session organisers: Natalia Moragas (University of Barcelona) – Carla Jaimes Betancourt (University of Bonn)

SESSION ABSTRACT

Organized by EAA4Am Community, this session aims to create a welcoming space for archaeologists participating in the 2025 annual meeting and interested in introducing and sharing results of ongoing research on the archaeology and heritage of the Americas. Despite the long trajectory of research in the Americas by scholars based in European institutions, few spaces dedicated to Americanist archaeology exist in European archaeological meetings. Sessions at the last EAA conferences have successfully showcased the vitality and diversity of European-based ongoing projects in the Americas. Researching the Americas within the framework of European institutions has its own challenges, conditioned by the history of both continents from the end of the 15th century to the present day. Likewise, the archaeology developed in America has its own setting with the existence of an indigenous cultural context in which our research is inserted. It is also a space to generate new networks of academic exchange between colleagues.The 2025 Belgrade conference will allow us to discover new projects, as well as networking and discussing the current theoretical debates and methodological approaches related to archaeological and heritage research in the Americas. The session is open to all geographies and chronologies. To guarantee the greatest number of participants, projects are encouraged to present their results jointly. More on EAA4Am: [https://www.eaa.org/EAA/Communities/Community\\_for\\_the\\_Archaeology\\_of\\_the\\_Americas/EAA/Navigation\\_CommunitiesEAA4Am](https://www.eaa.org/EAA/Communities/Community_for_the_Archaeology_of_the_Americas/EAA/Navigation_CommunitiesEAA4Am)

CONTRIBUTION ABSTRACTS

1416. EL SHINCAL PROJECT: ANDEAN RITUALS FROM INCA TIMES TO THE PRESENT DAY

Contribution format: Oral  
Contribution authors: Tomás Fernández Iriarte (ArqueoUIB Research Group. Universitat de les Illes Balears | Institut Català de Paleoecologia Humana i Evolució Social (IPHES-CERCA) | Universitat Rovira i Virgili (URV), Departament d’Història i Història de l’Art) – Mariana Valderrama – Iván Fasciglione – Alejo Rubert – Candela Recalt – Renata Verna – Abril Martí (División Arqueología (FCNyM-UNLP)) – Marco Giovannetti (División Arqueología (FCNyM-UNLP) | conicet)

In this work we want to present a non-European archaeology project in the South Andean region of America. The El Shincal site is well known today for representing the largest settlement built by the Incas in the Argentine Northwest. It is located in the province of Catamarca (Argentina), in a region previously occupied by local communities in the precedent centuries. It is estimated that this occurred in the mid-15th century with the intention of establishing a ceremonial center where state festivals were held, attended by hundreds of people who arrived from various regions on both sides of the Andean Mountain range. Our research showed that a truly sacred landscape was built. Different places of worship were built, and the nearest hills were reconfigured as high places where ceremonies were offered to the Andean deities. A solar marker was even installed at the top of one of the hills to measure the most important dates of the Inca ceremonial calendar. We identified evidence of massive festivals from the objects used to consume food and alcoholic beverages, as well as of hallucinogens. Furthermore, the

project has entered a phase where we are trying to transcend the purely Inca period to try to understand what happened at the site with the arrival of the Spanish. We were able to recognize that it was reoccupied during times of indigenous rebellions against the Spanish occupation. These events would have occurred in the 17th century and left evidence of Inca ritual spaces in the same places, even after the fall of Tawantinsuyu. In recent decades, partly due to the advance of archaeological studies, the site has gained great notoriety and is visited by hundreds of people. But at the same time, local indigenous communities claim their right to reoccupy ceremonial sites to perform their own rituals.

1591. COMMUNITY ARCHAEOLOGY IN A GARIFUNA VILLAGE OF NORTHEAST HONDURAS

Contribution format: Oral  
Contribution authors: Markus Reindel (German Archaeological Institute)

How can community archaeology be introduced in a region with a complex, multilayered history, where the present dominant indigenous population is not directly connected to the pre-Hispanic remains uncovered in recent excavations? The area surrounding the modern town of Trujillo, in northeast Honduras, is widely recognized as the site of Columbus’s first landing on the American mainland, a hub of pirate activity during the colonial period, and a center for large banana companies in the early 20th century. However, the indigenous pre-Hispanic history of the region remains significantly underrepresented. Today, the villages west of Trujillo are predominantly inhabited by the Garifuna people, descendants of African slaves who arrived on the Honduran coast in the late 18th century. In contrast, the region’s original pre-Hispanic indigenous communities—most notably the Pech—have been reduced to small settlements, struggling to preserve their language and cultural heritage. Since 2016, we have conducted archaeological research in northeast Honduras with the aim of reconstructing its pre-Hispanic settlement history. Our surveys, excavations, and archaeometric analyses have documented more than 60 archaeological sites, providing insights into the Betulia (300 BC–300 AD), Selin (300–1000 AD), and Cocal (1000–1500 AD) periods. In collaboration with Honduran institutions and local Garifuna and Pech communities, we strive to integrate these newly acquired historical insights into local educational curricula. Community members actively participate in archaeological surveys and excavations, as well as in the design and construction of a site museum and the dissemination of discoveries. In doing so, archaeology serves as a catalyst for raising awareness of the region’s rich autochthonous cultural heritage and fostering dialogue between the diverse indigenous communities of northeast Honduras.

1603. TRANSITION AND TRADITIONS: STUDY OF INDIGENOUS AND COLONIAL INTERACTIONS IN 16TH-18TH CENTURY AD CARTAGENA DE INDIAS (COLOMBIA) THROUGH CERAMICS

Contribution format: Oral  
Contribution authors: Sonia Pujals Blanch – Roberta Montesana (University of Barcelona) – Monika Therrien (Fundación Erigaie. Grupo de investigación Herencia Cultural, Bogotá, Colombia) – Jaume Buxeda I Garrigós (University of Barcelona)

Cartagena de Indias, founded in 1533 on the Caribbean coast of present-day Colombia, became a hub of cultural exchange during the 16th and 17th centuries. As a major port linking the Americas and the Iberian Peninsula, it brought together Indigenous peoples, African slaves, and European colonisers, fostering the emergence of creole identities shaped by cultural negotiation and technological transfer. Ceramic production reflects this cultural synthesis, where Indigenous people, while preserving local techniques, incorporated European ones. This adaptation was not merely a passive assimilation of foreign styles, but an active reworking of their traditions in response to the new trends brought by the colonisation process. This paper explores the technological impact of European colonialism in the Colombian Caribbean through an study of 147 post-contact ceramics from Cartagena de Indias, primarily used for cooking, transport, and tableware. It focuses on ceramics identified by archaeologists as Indigenous contact ceramics, specifically Crespo typologies, and Creole ceramics, including Mayólica Cartagena and Rojo Compacto typologies. These ceramics, recovered from various archaeological contexts within the city, including the Convento de San Francisco, Batería de San Ignacio, and the Museo del Oro Zenú, provide insights into the distribution, consumption, and circulation of Cartagena de Indias’ pottery production. The research employs analytical techniques such as X-ray fluorescence (XRF), X-ray diffraction (XRD), and optical microscopy (OM) to reveal the possible provenance and production techniques involved in its manufacture. As the first in-depth study of Indigenous Crespo and Creole ceramic typologies, this work contributes to understanding Cartagena de Indias’ ceramic production. It bridges the gap between pre-contact and post-contact ceramic technologies, shedding light on how Indigenous communities modified their practices under the pressures of colonisation. By tracing these changes, the study highlights the resilience of Indigenous people as they navigated cultural transformations while preserving elements of their cultural heritage.



2234. ARCHAIC LIFEWAYS AND HUMAN-ENVIRONMENT INTERACTIONS AT EL POZITO, SAMANÁ PENINSULA, DOMINICAN REPUBLIC

**Contribution format:** Oral  
**Contribution authors:** Francesco Genchi – Emanuela Cristiani (Sapienza University of Rome) – Giampiero Tursi (Freie Universität Berlin) – Sergio Botta (Sapienza University of Rome) – Carola Flores (Universidad Adolfo Ibáñez, Chile | Universidad Adolfo Ibáñez, Chile) – Cornelio Nolasco (Universidad Autónoma de Santo Domingo UASD) – Renato Rimoli – Glenis Tavarez (Museo del Hombre Dominicano, Universidad Autónoma de Santo Domingo) – Alfredo Coppa (Sapienza University of Rome)

The Samaná Peninsula, located in the northeastern Dominican Republic on the island of Hispaniola, long overlooked archaeologically, has recently become the focus of systematic excavations. Among these, The Archaeological-Anthropological Mission of Sapienza University of Rome in the Caribbean Archipelago has investigated the El Pozito site, an Archaic settlement near a natural spring-formed well close to Las Galeras and 4 km from the burials recently discovered in the caves of Cabo Samaná. A burial that came to light in the last excavation campaign was analysed for ancient DNA and will allow a comparison with these burials. El Pozito provides direct evidence of pre-ceramic and pre-agricultural lifeways, offering new insights into early migrations and human-environment interactions in the region. Excavations revealed a well-preserved anthropogenic layer containing shell middens, faunal remains, combustion features, and a dense assemblage of lithic and shell tools. Functional and technological studies using microscopic wear-trace and residue analysis identified food processing, woodworking, and craft production. Grinding stones and pestles show wear patterns linked to cassava (*Manihot esculenta*) and other starchy plants, while mariposoid axes and perforated coral tools indicate woodworking and material transformation. The integration of archaeozoological and malacological data highlights complex human-environment interactions, with evidence of terrestrial and marine mollusk exploitation (*Caracolus*, *Cittarium pica*, *Aliger gigas*) for food, tool-making, and possibly ritual practices. These findings contribute to our understanding of early settlement patterns, technological adaptations, and inter-island connections in the Greater Antilles, bridging archaeological evidence and indigenous ecological knowledge.

1325. TEACHING PRE-HISPANIC STUDIES IN EUROPEAN CONTEXTS: CHALLENGES AND OPPORTUNITIES

**Contribution format:** Oral  
**Contribution authors:** Natalia Moragas – Alessandra Pecci (University of Barcelona)

Teaching about the pre-Hispanic world at universities in Europe presents a very particular context due to the prior lack of knowledge about these cultures. On top of that, there are various paradigms that students bring with them, shaped by preconceived ideas about the pre-Hispanic world, mostly influenced by Eurocentric perspectives. In universities, teaching and research feed into each other, but when the field of research is thousands of kilometers away, it becomes much more complex to bring this past into the classrooms. This lack of knowledge is accompanied by a series of prejudices, such as human sacrifice, the idea of being inferior to European classical cultures, or, on the contrary, narratives full of epic and exotic elements that offer a biased and misleading image of the complexity of the American past. It is often reduced to the classic: Mayans, Aztecs, and Incas. If we want to consolidate pre-Hispanic research in Europe, we must also focus on teaching from the undergrads. In recent years, and within the framework of teaching in the History degree at the University of Barcelona, various strategies have been implemented to rethink how and why to teach pre-Hispanic cultures in European contexts.

175 THE WAR STARTS OVER THAT HILL: EXPLORING WARFARE AT THE LOCAL SCALE IN PRE-INDUSTRIAL SOCIETIES

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** Conflict Archaeology , Battlefield , Aftermath, Preindustrial , Local scale  
**Session organisers:** Pablo Harding (Universidad Autónoma de Madrid) – Mario Pereiro (Universidade do Minho) – Javier Moralejo – Fernando Quesada (Universidad Autónoma de Madrid)

SESSION ABSTRACT

War has been a central theme in history since the works of the earliest historians, who recognised it as a force of change in human communities, altering the social, political, economic and ideological makeup of all involved. Nonetheless, traditional discourse has routinely framed war within the “Grand Narratives” of history, emphasizing large battles between great states. The more routine small-scale warfare that prevailed throughout history

and the effects of warfare on the local population have traditionally been deemed secondary, although this has changed in recent years. In this sense, Conflict Archaeology and its methodological toolkit have proven especially fruitful in shedding light on conflicts and engagements otherwise ignored or minimized by written sources. In cases, archaeological battlefield studies have altered widely-held perceptions of well-known battles. This session aims to focus on the local and regional scale of warfare in past societies, analysing the engagements themselves (battlefields, sieges, mass graves, and other evidence of collective violence) and their aftermath. This focus shies away from interpreting conflicts from a global, external perspective, and highlights the utility of conflict archaeology for microhistory analysis. Emphasis is placed on the interactions between external and local agents through warfare, on conflicts between local communities, and the influence of the immediate environment, both human and geographical, on armed engagements. This entails re-framing and re-contextualising a wide array of artefacts and contexts. These include direct evidence of violence: weaponry, fortifications, human remains, destruction events, etc; and also evidence of sudden, violent change among the communities themselves: the appearance of foreign militaria, erected monuments, modified settlement and territorial patterns, etc. Lastly, this session limits itself to pre-industrial societies, as we consider that warfare at an industrial scale merits its own separate study. On a European scale, this sets a chronological limit in the first third of the 19th century.

CONTRIBUTION ABSTRACTS

422. LOCALS OR FOREIGNERS? THE TRANSFORMATION OF THE MIDDLE TAGUS VALLEY DURING THE LATE IRON AGE IN A FRAMEWORK OF CONFLICT

**Contribution format:** Oral  
**Contribution authors:** Pablo Sánchez De Oro (Universidad Autónoma de Madrid)

The fourth century BC marked the start of the Late Iron Age in the Middle Tagus Valley (Central Spain). A series of changes occurred at this point at several levels: new technologies, new dynamics, and, especially, new types of settlements. The latter are hillfort like sites —presenting defences such as ramparts and moats— occupying singular points of the landscape as peninsulas and earth spits. This evidence has traditionally raised a discussion about the motive that led to the appearance of these new settlements. Local and foreign causes have been proposed. Additionally, the lack of archaeological fieldwork has generated a poor knowledge of the inner spaces of these sites, not conducting to a clear interpretation of these ‘hillforts’ as habitat spaces nor shelters, or even both. Through this contribution, we present a revision of both opinions, including new data to generate a discussion which will try to answer the traditional question presented above. All of these in a wide framework that unites theoretical approaches and the archaeological record.

425. SHEETS, RINGS AND PINS. A SOCIO-TYPELOGICAL ANALYSIS OF THE SOCKET-SHAFT FITTING METHODS APPLIED TO IBERIAN SPEARHEADS

**Contribution format:** Oral  
**Contribution authors:** José Manuel López Manzanera (Universidad de Murcia)

Originally, spearheads featured a tang that was inserted into the end of a wooden shaft. The connection between the two parts was reinforced with cords and other adjustment elements arranged around it. Later, during the Late Bronze Age, a paradigm shift occurred that led to the tang attachment system being replaced by a tubular socket over a conical tenon. The efficiency of this new structural scheme would ensure its continuation throughout the Iron Age, when spearheads began to show a regularity in the use of complementary fastening methods. Within the Iberian world, this socket-shaft connection was secured through three types of additional adjustments: an internal bronze cap, a diametrical metal pin, and an external pressure ring. This study aims to reinterpret the socio-typological aspects of one of the military artifacts most commonly found in Iberian necropolises: spearheads. Based on a sample of both unpublished and published specimens, this proposal focuses on the variability of the different adjustment methods present in the socket (functional combinations and typological variants). The objective is to establish a relationship between the use of one or more categories of adjustment and the shape and size of both the blade and the socket. All of this is an attempt to identify production patterns and possible chrono-geographical trends. There are specimens whose adjustments exhibit a differential level of detail. In these cases, aside from their functionality, we might be talking about elements with a certain aesthetic value. In other words, the manifestation of such elements could be related to the social status of the deceased, serving as a possible indicator of social differentiation and distinction.

2449. A GLIMPSE OF IRON AGE VIOLENCE FROM NORTH-CENTRAL IBERIA

**Contribution format:** Oral  
**Contribution authors:** Teresa Fernandez-Crespo (Universidad de Valladolid)

Direct evidence from prehistoric and ancient Europe for violence inflicted on human bodies and material property



is rare, especially that involving large-scale, organised hostilities. One example is the massacre that took place in La Hoya Iron Age village located in Álava region, Basque Country, north-central Iberia. The site was brutally attacked and set alight in a market day sometime between the mid 4th and late 3rd centuries BC, in what is interpreted as an instance of conflict between rival local communities. Here, we discuss the available osteological and material evidence to assess the degree of violence observed. We compare the results with Iberian Roman massacres. We suggest that, although Iberian pre-Roman Iron Age polities were not fully formed states, they were sufficiently cohesive entities to engage in large-scale, organised martial endeavours in proportion to their territorial and demographic resources, and that politically motivated warfare was not introduced by the Romans in Iberia.

921. ON THE REALITIES OF WAR: MASS MURDER IN IBERIAN IRON AGE ARCHAEOLOGY

**Contribution format:** Oral  
**Contribution authors:** Fernando Quesada – Pablo Harding (Universidad Autónoma de Madrid)

The intrinsically cruel nature of war is clearly reflected in Graeco-Latin literary sources and in iconography. However, texts and images serve as an intellectual filter that tends to soften the ferocity of reality. Archaeology in the Iberian Peninsula has increasingly provide. direct and harrowing evidence of human remains in contexts of assaults, destructions and massacres in settlements and cities, largely through extensive excavations over the last two decades. These findings span a period between the 4th and 1st centuries BCE, with a particular concentration during the Sertorian Wars (c. 80–74 BCE). The archaeological remains predominantly belong to non-combatants or prisoners, including men, women, and children, whose skeletons—often mutilated—are found lying on streets or crushed beneath the rubble of burned houses. This paper will briefly present several recent case studies and discuss how this brutal reality is beginning to appear displayed and explained i. exhibitions and Interpretation Centers in archaeological sites.

742. RETHINKING THE SECOND PUNIC WAR: NEW CONTRIBUTIONS TO THE KNOWLEDGE OF THE ROMAN-PUNIC CONFLICT IN THE UPPER GUADALQUIVIR (JAÉN, SPAIN)

**Contribution format:** Oral  
**Contribution authors:** Juan López Martínez (University of Granada) – Juan Padilla Fernández (University of Salamanca) – Francisco Matas Adamuz (Independent) – José Ortega Diez – Luis Arboledas Martínez (University of Granada)

The study of the Second Punic War in the Iberian Peninsula (III-II B.C.E) has experienced notable advances in recent decades, driven by new archaeological methodologies and the discovery of key sites. In this context, the Upper Guadalquivir (Jaén, Spain) stands out as an area of vital importance in the confrontation between Rome and Carthage. The area played a crucial role in the fight for territorial dominance and the military strategies of both armies. The remains of settlements, camps and war confrontations found in the region reinforce the idea of their central role in the events that marked the outcome of the conflict. This communication offers a synthesis of the most recent research on the study of this conflict in the westernmost part of the Upper Guadalquivir through archaeomagnetic surveys and archaeological excavations. These have made it possible to identify defensive structures and various materialities of military origin. Through an interdisciplinary approach that combines archaeological data and historical sources, this proposal aims to contribute to the debate on this topic and provide a new approach to the impact of the Second Punic War in that region. An alternative configuration of the war landscape of Iberia at the end of the 1st millennium BC is proposed, expanding knowledge about the military tactics of the time, the dynamics of the movement of armies and the different interactions between the forces involved in this conflict.

1043. USQUE A SUCRONE AD CARTHAGINEM NOVAM. THE PATH THAT DECIDED THE CONQUEST OF HISPANIA

**Contribution format:** Oral  
**Contribution authors:** Feliciana Sala-Sellés (Universidad de Alicante | Instituto Universitario de Investigación en Arqueología y Patrimonio Histórico) – Estela García-Botella (Universidad de Alicante | Instituto Interuniversitario de Geografía) – Fernando Llorens-Cobos (Universidad Miguel Hernández) – José Luís Martínez-Boix – Pascual Perdiguero-Asensi (Universidad de Alicante | Instituto Universitario de Investigación en Arqueología y Patrimonio Histórico) – Alfredo Ramón-Morte (Universidad de Alicante | Instituto Interuniversitario de Geografía)

In 209 BC Scipio began the forced march that would take him to the Barquid capital in seven days, culminating in the capture of the city, arsenal and naval base of the Carthaginian army. The start of the march, traditionally

placed at the Ebro or Sagunto, gives a higher number, between 15 and 10 days respectively, attributing the difference to a transcription error. Recent opinions propose placing the start of the march at the camp on the river Sucro, which would make the seven days in the account complete. In this paper we present the methodology and first results of the research whose aim is to reconstruct the route by trying to locate the six marching camps of Scipio’s army from the river Júcar to Cartagena, as well as to assess the effects of the army’s passage on the population that lived near the route. To this end, a Geographic Information System (GIS) has been created that integrates the geolocation of the known archaeological items (settlements, necropolis, treasure troves, stretches of road, Roman villas, etc.) together with other information of a spatial nature, such as orography, historical road routes, livestock trails, land use, and terrain features, with the aim of combining a multi-criteria evaluation (MCDA) and least-cost route calculation (LCP) to determine the route of Scipio’s army and the location of its marching camps based on objective criteria.

694. EVERYDAY SIEGE WARFARE IN MEDITERRANEAN GAUL FROM THE LATE 3RD TO THE 2ND CENTURY BC

**Contribution format:** Oral  
**Contribution authors:** Dominic Vallieres (Université de Perpignan)

The archaeometric analysis of catapult balls found at Greek and Gallic sites in southern France revealed unknown military operations involving the artillery of the Greeks of Massalia against the Gallic oppida of Provence and Languedoc during the final centuries BC, supplementing historical sources. It also sheds light on the unexpected realities of the daily experiences of both attackers and defenders. At the forefront were the catapult operators (the katapultaphétai) and stonemasons. Their labour was crucial to maintain pressure on the besiegers by continuously supplying projectiles and targeting vulnerable spots in the enemy defences, thereby facilitating the infantry’s advance and capture of the position. Meanwhile, the besieged endured relentless artillery fire from within their fortifications, with all the distress that these types of weapons could cause to defences and civilian populations. If a city was captured but not destroyed and abandoned, its fall led to profound political and social changes. A striking example is Craton, who aligned with Rome and Massalia and, along with 900 fellow citizens, was freed from enslavement after the city’s capture from the Salyans in 123 BC—an event plausibly linked to the Entremont oppidum. This study also explores the introduction of the catapult to Massalia in the last decades of the 3rd century BC and how Gallic communities adapted to this new siege technology, as evidenced by sites like Pech Maho and Entremont. Finally, it questions the training of artillerymen, the role of gymnasium competitions, and artillery production and storage organization in the Greek city of Massalia.

607. WAR WAS SUPPOSED NEVER TO CHANGE. OR DID WE? LOW-INTENSITY CONFLICT(S) IN NORTHERN IBERIA DURING THE ROMAN EXPANSION

**Contribution format:** Oral  
**Contribution authors:** José Costa-García (Universidad de Salamanca)

In the last decade, the development of targeted archaeological methodologies led to the detection of a considerable number of sites related to the presence of the Roman army in Northern Iberia. Most of these sites are large-scale field fortifications whose insertion into the main historical narratives on the Roman conquest (2nd-1st centuries BC) has been taking place relatively quickly. A careful analysis of the evidence also allows us to appreciate a picture that transcends the account focused on large troop deployments and could respond to different strategies for the effective control of a vast territory which shows very diverse physical and human geographies. The gradual overcoming of specific morphological and locational apriorisms has brought with it the discovery of new sites that, despite appearing isolated, were undoubtedly embedded in complex, rapidly changing landscapes. Unfortunately, the precise characterisation and dating of these fortifications are still limited by factors such as the scarcity of archaeological parallels, elusive materiality, or the methodologies’ constraints. Furthermore, research has not yet addressed the systematic review of the Late Iron Age native contexts in connection with these recent discoveries. The archaeological evidence of physical violence is scarce and uneven regarding territorial distribution, but we cannot determine to what extent this factor reflects differential native responses. Likewise, the dismantling and bypassing of pre-existing, organisational structures scarred the landscapes for decades and undoubtedly impacted the indigenous settlements. However, calibrating the Roman army’s direct involvement in these processes —transpired by other sources— remains a major challenge in archaeological terms. This paper addresses these problems to establish a casuistry that allows us to deepen our knowledge of specific (military) actions presumably oriented to integrating the recently conquered territories into the Roman imperial structures.

190. HATRA, A DIFFICULT NUT TO CRACK. HOW TO SUCCESSFULLY DEFEND A CITY, AND LOSE IT

**Contribution format:** Oral  
**Contribution authors:** Krzysztof Jakubiak (University of Warsaw, Faculty of Archaeology)



Lying in northern Mesopotamia, Hatra is undoubtedly one of the most important cities existing in the region in the first centuries AD. Its origins are still being studied, but it is not only these threads that focu. attention, but also the development of the city’s importance, which began to attract potential conquerors. The city’s importance as one of the most important religious centres in the region, and therefore a potentially wealthy urban centre, may have attracted the interest of enemies. The city’s strategic location was also not insignificant. Hatra successfully defended its independence against Roman armies when Trajan and later Septimius Severus stood beneath its walls. The steadfast attitude of the city’s inhabitants shows how successfully it was possible to defend itself against the seemingly invincible Roman army and even develop its city. The end of its existence is brought only by the confrontation with the Sassanids. It is therefore worth considering what - and if indeed - the Romans made mistakes in the art of war, and whether the Sassanids learned from their failures.

**883. AN INSIGHT INTO BYZANTINE ALCHEMICAL TREATISES INVESTIGATING THE METALLURGICAL AND WEAPONS TECHNOLOGY**

**Contribution format:** Oral  
**Contribution authors:** Errikos Maniotis (Masaryk University) – Georgios Sanidas (Université de Lille)

Alchemical knowledge reached the Byzantine Empire through Alexandrian scholars and texts, preserving and expanding upon the works of Hellenistic figures like Zosimos of Panopolis and Maria the Jewess. Byzantine alchemists also engaged with Persian and Indian alchemical traditions, resulting in a cosmopolitan body of knowledge. Byzantine alchemical treatises on metals and iron offer a fascinating blend of practical metallurgy and symbolic interpretation. These works reflect a continuation of ancient traditions, enriched by Byzantine spiritual and cultural elements. Metals, especially iron, are discussed in both practical terms, concerning their properties and transformation, and in philosophical or allegorical contexts, linked to ideas of perfection, decay, and renewal. A corpus of alchemical texts (four of which are attributed to Zosimos of Panopolis, c. 300 A.D.), surviving in three medieval manuscripts, compiled during the 9th or 10th century, possibly by Constantine VII, makes brief mention of some ferrous metallurgical techniques, with particular emphasis on the production of bladed weapons. Alchemists explored the unique characteristics of metals, such as their malleability, ductility, and resistance to corrosion, particularly focusing on their role in crafting tools, weapons, and artistic objects. Alchemists explored the unique characteristics of metals, such as their malleability, ductility, and resistance to corrosion, particularly focusing on their role in crafting tools, weapons, and artistic objects. This scientific proposal aims to investigate the contribution of the Byzantine Alchemical Books to our knowledge of metallurgy and iron processing, while some notable examples of metallographic analysis of weapons, especially swords, will be presented, since the field of metallographic examination of Byzantine weapons has not been developed yet.

**1366. FORGOTTEN BATTLES FOR RUS’, KYIV, AND THE CROSSING OF THE DNIEPER: SEARCHING FOR ARCHAEOLOGICAL EVIDENCE**

**Contribution format:** Oral  
**Contribution authors:** Mariia Videiko (Boris Grinchenko Kyiv metropolitan university)

Over 900 years ago, armed conflicts took place for the supreme power and the capital of Rus — Kyiv on the Dnieper. To win the war, it was critically important to transport troops across the great river. The chronicle mentions such operations more than ten times near the city of Tropol. The width of the Dnieper valley in this place is ten kilometers. This was the closest crossing to Kyiv from the south, which determined its strategic importance. Archaeological searches for this crossing and traces of events around it yielded interesting results. The key to the crossing on the right bank was the large city of Tropol, founded in the 11th century. The city was located on a high mountain surrounded by a swampy lowland. The path to Kyiv began from here. Further south, at an interval of four kilometers, there were two more fortress cities at this time, known as Halep and Vytachiv. On the left bank, traces of at least three unnamed fortresses have been discovered, which in the 12th-14th centuries blocked the road from the crossing. The fortresses were complemented by a long rampart located south of them. All these fortifications were built at the time of the most intense conflicts and were in use after their completion. Thus, archaeological research has significantly supplemented the picture of events described in the chronicles. The fortresses and rampart on the left bank are not mentioned in any documents. Their existence allows us to explain the course of some events in the ancient battles for Kyiv. Archaeological prospections have shown that two fortifications on the routes through the crossing were later restored and functioned in the 16th and 17th centuries. Further archaeological research on the left bank will help complete the picture of events.

**2534. LANDSCAPE ANALYSIS OF MEDIEVAL CASTLE SIEGES IN MORAVIA (CZECH REPUBLIC): FIELD SURVEY DATA AND LIDAR DATA**

**Contribution format:** Oral  
**Contribution authors:** Jana Mazackova (Masaryk University, Department of Archaeology and Museology)

The 15th century was a turbulent period in Czech history, encompassing the lands of Bohemia, Moravia, and Silesia. The Hussite Wars, a civil war, caused significant disruption to the state and social hierarchy. However, these conflicts also advanced military technology, particularly the improvement of firearms and military siege tactics in the Czech lands, which expanded into foreign territories with Hussite armies. The political resolution after the Hussite Wars led to the rise of the first king from a noble family of the Hussite faction. Despite this, the Catholic faction remained in opposition, continuing the struggle and marking the beginning of the era of castle sieges, which are well-visible and documented in the landscape. This military period is well-recognized in the surroundings of the three Moravian castles: Rokštejn, Cornštejn, and Vranov, where field surveys were conducted (detection of anthropogenic features, metal detector surveys and analysis in GIS and using LiDAR data). The terrain data shows the tactics of the besiegers and the differences and similarities in the military actions and capabilities of the castle men-at-arms and the castles themselves (architecture). From the castles Rokštejn and Cornštejn, we know the archaeological situation because systematic or rescue excavations were conducted there. The spectrum of weapons and the final impact of the besiegers on the fortified castle areas, such as fire and the destruction of castle buildings, are well-documented.

**1251. SOLDIERS ON THE MOVE: ISOTOPIC AND HISTORICAL INSIGHTS INTO MILITARY LIFE IN 17TH-18TH CENTURY LISBON**

**Contribution format:** Oral  
**Contribution authors:** Ana Curto (HERCULES Laboratory, University of Évora) – Susana Henriques (CIDEHUS, University of Évora) – Carina Leirião – Liliana Carvalho – Sofia Wasterlain – Ana Amarante (CIAS, University of Coimbra) – Anne-France Maurer (HERCULES Laboratory, University of Évora)

The InOsteo project pioneers an interdisciplinary approach, integrating osteology, archaeology, history, chemistry, paleoparasitology, and genomics, to explore the health, mobility, and care of military populations in 17th-18th century Portugal. Focusing on an osteological collection from the Military Hospital of São Jorge Castle in Lisbon, this study employs strontium stable isotope analysis of dental enamel (2nd and 3rd molars) to assess geographic origins and mobility patterns. Preliminary findings indicate that a significant proportion of the individuals were non-local, aligning with historical records of soldiers from diverse Portuguese regions and foreign contingents, including French troops during the Restoration War. The study also investigates whether some soldiers may have embarked on the vessels of “Carreira da Índia” to Asia, contributing to early globalization, and returned to Lisbon, potentially introducing non-European diseases. By combining isotopic data with historical and archaeological evidence, this research aims to reconstruct the life trajectories of these soldiers, shedding light on their mobility, health challenges, and medical care. The results will provide historians and scientists with novel data, methodologies, and insights into military life and movement during this transformative period in European history.

**176 MATERIALITIES OF MEMORIALISATION: SPATIAL TRANSFORMATIONS AND THE ROLE OF ARCHAEOLOGY AT SITES OF RECENT CONFLICT, OPPRESSION AND VIOLENCE**

**Session theme:** 6. Intertwining archaeology, heritage, and museums  
**Session format:** Regular session  
**Session keywords:** Heritage, Remembrance, Memorial Sites, Space, Landscape  
**Session organisers:** Peter Hinterndorfer (Institut für jüdische Geschichte Österreichs) – Layla Renshaw (Department of Applied and Human Sciences, Kingston University) – Esther Breithoff (School of Historical Studies, Birkbeck, University of London) – Barbara Hausmair (Institut für Archäologien, Universität Innsbruck) – V. Camille Westmont (University of Cambridge)

**SESSION ABSTRACT**

This session explores two intersecting questions within the archaeology of recent conflict, oppression and violence: How do acts of memorialisation change the materiality and spatiality of sites and landscapes where conflict has occurred? How does archaeological knowledge and evidence influence memorialisation at such sites. When conflict sites and landscapes are designated as heritage, a broad range of interventions and transformations can occur. These include the restoration or demolition of structures, landscaping and replanting, and the creation of monuments, choreographed routes and visitor facilities. At the same time, these processes are charged with symbolic meaning and (sometimes diverting) aspirations of different groups involved. How does the physicality of a site itself, and material traces, shape the forms of remembrance that emerge? Conventionally conceptualised



as forms of preservation, what may be lost during these transformations? How do existing memorial and heritage interventions influence or constrain our approaches to these sites as archaeologists. The impact of archaeology on sites of recent conflict includes: the discovery and excavation of new features, the assessment of standing buildings, conservation of existing monuments, and the recovery of artefacts. Archaeological work can directly shape memorialisation, for example when artefacts are incorporated into monuments or put on display. New archaeological evidence may destabilise settled narratives. The immediacy and emotive power of archaeological discoveries can elicit new public engagement with past conflicts, but also risks being divisive or exploitative since archaeological practice itself is inherently destructive in nature and also operates within current socio-political discourses. This session invites both theoretical discussions and critical field-based examples to explore the intertwined nature of sites or landscapes of violence, archaeological processes, and memorialisation. The focus of this session is on all forms of conflict including warfare, protest, economic or environmental violence, political repression, encompassing all geographical areas in the 20th and 21st Century.

CONTRIBUTION ABSTRACTS

188. BY ORDER OF ASSAD: STRATEGIES FOR RE-IMAGINING CULTURAL HERITAGE DURING THE SYRIAN ARMED CONFLICT

**Contribution format:** Oral  
**Contribution authors:** Nour A. Munawar – James Symonds (University of Amsterdam (UvA))

There is a well-known truism that history is written by the victors. When wars end the victors invariably use cultural heritage to commemorate the events and individuals that have supported their struggles and rise to power. The armed conflict in Syria (2011 – 2024) resulted in the destruction and looting of numerous historic sites and cultural institutions and prompted international dialogues on how best to preserve, protect and rebuild the country’s cultural heritage in the post-conflict era. This paper provides an overview of how the long civil war impacted Syria’s rich cultural heritage and the ways in which the past was appropriated and used to support the al-Assad regime and the Syrian governing elite. The paper stresses the significant role that heritage reconstruction and memorialisation practices have on war-damaged sites and monuments and explores how practices orchestrated by the al-Assad regime aimed to (re-)shape cultural identity and public spaces in Syria and to selectively re-imagine the nation’s symbols and heroes during an unfinished conflict.

860. THE LEGACY OF BELLIGERENT LANDSCAPES IN UKRAINE: BETWEEN REUSE, DESTRUCTION, AND ETHICAL DEBATES

**Contribution format:** Oral  
**Contribution authors:** Oleksandra Ivanova (National University of Kyiv-Mohyla Academy)

Military landscapes do not disappear after conflicts end. They transform and persist as part of the long-term continuity of strategic spaces. They are not merely witnesses to former defensive frontiers but active elements in shaping military strategies across different historical periods. In Ukraine, we can trace the reuse of belligerent landscapes over centuries: from Scythian and Rus’ fortifications to Cossack strongholds, Polish and Moscovium border defenses, pillboxes from the time of the Second World War, and contemporary fortifications built during the ongoing full-scale russian invasion. The same locations have been deliberately chosen for military purposes time and again, adapting to evolving warfare technologies. However, modern reuse of fortifications raises complex ethical questions. Ongoing military actions in Ukraine have led to the construction of new defensive structures on ancient sites—hillforts, fortified settlements, and fortress ruins. This process is simultaneously “destruction” in the legal sense and “continuation of tradition” from the perspective of historical continuity. According to the 1954 Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict, “any act of hostility directed against historic monuments, works of art or places of worship which constitute the cultural or spiritual heritage of peoples” is prohibited. Yet, when defensive structures are built as a necessity for survival, how should we approach these landscapes in research? Can we separate destruction from strategic reuse? This presentation considers belligerent landscapes as active agents in historical interactions and analyzes them as institutions regulating military engagement over centuries. Using case studies from the Kyiv region, I examine how the current war influences the perception, preservation, and academic interpretation of military landscapes. Can we define these processes as destruction when they have been occurring for centuries? How should archaeologists navigate the ethical challenges of studying conflict-related landscapes?

2213. MEMORY AND MATERIALITY IN CONFLICT LANDSCAPES: SPONTANEOUS MEMORIALS IN THE RUSSIAN-UKRAINIAN WAR

**Contribution format:** Oral  
**Contribution authors:** Diana Nahirna (Ukrainian Institute of Cognitive Behavioural Therapy) – Alisa Demina (National University of Kyiv-Mohyla Academy)

The war in Ukraine is transforming public and private spaces through destruction and acts of violence. Some of these places are becoming memorials or spontaneous shrines, while others are avoided. Some, particularly living spaces, are attempting to return to pre-war life. Along with the transformation of physical spaces, people’s memories of the tragic events are also evolving. The materiality of war and human perception of it continue to shape one another as the conflict continues. This research bridges the material analysis of trauma-related objects, spaces, and memorials with psychological studies on their impact on mental health. Given the ongoing nature of the war, the primary form of civilian memorialization observed is spontaneous, grassroots initiatives - memorials created by individuals, local communities, or eyewitnesses and relatives of the victims. Recognizing that memory is dynamic, especially in the context of an active war, a key component of this study is tracking changes in both the physical condition of these memorials and public perceptions of them over time. By examining how these spaces emerge, change, or disappear, the research aims to contribute to a deeper understanding of the relationship between conflict, material culture, and memory.

1767. TREES AS LIVING MEMORIALS AT VIMY RIDGE? COMMEMORATION, CONSERVATION AND REGENERATION IN TIMES OF CHANGE

**Contribution format:** Oral  
**Contribution authors:** Esther Breithoff (Birkbeck, University of London) – Layla Renshaw (Kingston University UK)

The Battle of Vimy Ridge in April 1917 was fought in the Pas-de-Calais department of France, during the First World War. The main combatants were the four divisions of the Canadian Corps in the First Army, against the German 6th Army. The huge losses sustained by Canada meant that Vimy became a central focus of their WWI heritage. The former battleground is now a memorial park and site of the Canadian National Vimy Memorial, which commemorates Canadians killed in France who have no known grave. The landscape at Vimy is inseparable from the aesthetic effect of the monument. The monument is located at the crest of this ridge with panoramic views across the plain below. The planting of this area with imported pine and maple trees has been integral to emphasising the natural drama of the topography, shaping the choreography of how visitors traverse and relate to the site. At Vimy, the species, positioning, geographical provenance, and aesthetic appearance of the plants have densely layered association, stories, and mythologies. This paper investigates how this carefully curated aesthetic has become unsettled with two recent developments. Firstly, the die-off of the original planting due to a fluctuating climate and, secondly, a centenary project nearby to install Vimy oaks, believed to be the offspring of acorns collected as mementoes by a Canadian soldier in 1917. Using a natural-cultural heritage perspective to think through the instability of the seeming permanence of the trees at Vimy, this paper will consider the memorial affordances of plants in shaping ideas of identity and nationalism, as well as discuss the impact of climate change on “natural” commemorative landscapes within a (post)conflict setting.

1075. PRACTICES OF MEMORY: CRIME SITES, CEMETERIES, MONUMENTS. INTERDISCIPLINARY RESEARCH ON THE KATYN MASSACRE

**Contribution format:** Oral  
**Contribution authors:** Olgierd Lawrynowicz – Magdalena Majorek-Lipowicz – Anna Zalewska (Institute of Archaeology, University of Lodz) – Aleksandr. Krupa-Ławrynowicz – Sebastian Latocha (Institute of Ethnology and Cultural Anthropology, University of Lodz)

The research project “Lexicon of Katyn Archaeology (1990–2015)” aims to collect, systematise and make available information on archaeological research related to the war crime committed by the Soviets against 22,000 Polish prisoners of war. This crime, known as the ‘Katyn Massacre’, took place almost simultaneously in many places in 1940. The intention of the perpetrators was to erase and cover up the material traces of this crime. For many decades, the perpetrators maintained and strengthened the so-called ‘Katyn Lie’. Our contribution will present issues related to methods of archaeological research used in the course of the search and exhumation works and their results, as well as their public perception and significance. Emphasis will be placed on justifying the thesis that it is legitimate to consider an interdisciplinary approach as inalienable in the study of memory practices. We will show that, in addition to archaeological, historical data, ethnographic interviews with the descendants of the victims and researchers are a very important element. By analysing the areas where Polish war cemeteries were established after archaeological research at the turn of the 20th and 21st centuries, the relationship between the practices of remembrance and the problem of the transformation of the landscape of crime sites will be revealed. We will present official and private practices of remembrance and commemoration: cemeteries, monuments, relics, events. We will propose answers to the questions: what is remembered and how? Who protects the memory of the victims of the Katyn massacre? While the core case will be the memory practices in and transformations of the Katyn Forest - where the first war cemetery was established as early as in 1943 after exhumations carried out by Germans - some references will be made to Mednoye, also in Russia, as well as to Kharkiv and Bykivnia, now in Ukraine,



1203. THE NECROPOLITICS OF MEMORIALISATION IN VUKOVAR (CROATIA)

Contribution format: Oral  
Contribution authors: Britt Baillie (Aarhus University)

In 1991, Vukovar was besieged by the Yugoslavian National Army (JNA) and Serb paramilitary forces resulting in a pyrrhic ‘victory’. The three-month ‘urbicide’ of Vukovar was followed by the expulsion of the ethnic Croat community. Five kilometers south of Vukovar, at least 194 identified individuals were beaten and summarily executed by Serb paramilitary forces at Ovčara. The search continues for the missing of Vukovar with ‘new’ internments turning up frequently over the last three decades. Vukovar was ‘peacefully (re)integrated’ into the Republic of Croatia under the auspices of the UN (1996-1998). It was part of the only region of the former Republike Srpske Krajina not to be (re)taken by Croatian military force. Since the return of the ethnic Croat population, an annual commemoration procession from Vukovar hospital to the ‘Homeland War’ cemetery coupled with segregated schooling have become central practices in the choreography of ongoing ethnic division. In 2019, the 18th of November, the day of the fall of Vukovar was declared a national holiday. Vukovar is not a space merely remembering crimes of the past, but rather a place of explosive emotions and intense attachments in the present. Vukovar is mired in ‘conflict-time’. Here, necropolitics determine who is deemed ‘worthy’ of commemoration and who may take part in commemorative activities and therefore ultimately who is ‘welcome’. Memory wars are fought over what scripts, dates, and labels may be used on memorials. The ethnicization of space is achieved through the strategic proliferation of memorials throughout Vukovar to enable the reification of national borders and the sacralization of public space deemed necessary for this self-proclaime. ‘place of special piety’. While the traces of war are increasingly ‘destroyed’ by the ‘benevolent’ processes of reconstruction, excavation, and development, memorials are increasingly used as political stages and props.

2109. THEY CAN’T HEAR US UP HERE. NEW APPROACHES TO THE ARCHAEOLOGY OF THE SPANISH CIVIL WAR IN MOUNTAINOUS CONTEXTS

Contribution format: Oral  
Contribution authors: Alejandro Trejo (Institute of Heritage Sciences (INCIPIT-CSIC))

Over the last two decades, an increasing scientific and social interest in the archaeological remains of the Civil War (1936-1939) has been developed in Spain. During the nearly three years of the conflict, thousands of military enclaves were built across the country to protect the mountain passes that connected the main hotspots of the war. Nevertheless though many studies have been carried out, only a few of them are focused on investigating mountain warfare contexts and their importance in the Spanish history. This lack of knowledge is due to the classification of mountain fronts as ‘secondary’, attributing less interest to them for scientific study. This paper outlines the first results of my thesis dissertation, which addresses the archaeological analysis of mountain military positions from the study of the material culture left behind by the violence that took place there. The results have provided new data about the development of the war, the organization of these repressive spaces, and the specific challenges of warfare in high mountains, such as logistical difficulties, the construction of defensive fighting positions and the adversities faced by the soldiers in their daily life. Our research has also allowed us to highlight the relevance of this unknown heritage to the local communities and the scientific academy and also has allowed us to get closer to the traces of the past that remain in the present of Spanish society. Although visiting the site itself by the community is already widespread within our discipline, new technologies allow us to carry out this social exchange in reverse, bringing the material remains to society. GIS, 3D modelling and photogrammetry have become really useful tools in the dissemination of this unknown heritage by the rest of society, especially when some of these military enclaves are in locations that are difficult to access.

2427. UNCOVERING THE TRENCHES: UNVEILING NEW PERSPECTIVES OF FORGOTTEN BATTLES ON THE EASTERN FRONTS

Contribution format: Oral  
Contribution authors: Jirí Zubalík (Institute for Archaeological Heritage Brno) – Jakub Těšnohlídek (Archaia Brno) – Jan Petřík – Martin Vojtas (Masaryk University) – Radim Kapavík (Signum Belli 1914) – Vojtěch Koudelka (Masaryk University) – Peter Tajkov (Technical University of Košice) – Martin Greša – Tomáš Hofírek (—) – Martin Drobnák (KVH Beskydy)

The mountainous region of eastern Slovakia was deeply affected by the events of both world wars, most famously known for the offensive of the Dukla pass of 1944, where the Russian army reinforced by Czechoslovak units entered the newly liberated Czechoslovakia. However, while the Dukla offensive was heavily glorified and commemorated as part of the Communist propaganda, the largely celebrated Russian success completely overshadowed some other marginal but no less bloody fights of WWII and even more so the fierce fights of WWI. From autumn of 1914, the Russian army was attempting to break through the Austro-Hungarian positions in the

eastern ridges of Slovak Carpathians. By spring of 1915 the Carpathian front became one of the focal points of WWI. In the end, the Russian army was repulsed and withdrew from the area in May. Despite their importance, these battles have been forgotten, the battlefield is not commemorated and the graves of the fallen have been slowly perishing in the Slovak hills and village graveyards. This has changed in the past 10 years. Research on the Carpathian front is gradually emerging and first war graves are being restored thanks to the activities of the association KVH Beskydy. Archaeological research combined with historical research sheds some light on forgotten battles; mapping the trenchline, metal detecting, and excavation on a number of chosen sites helps reconstruct the course of particular military operations, whose memorialisation was ignored for years due to socio-political reasons. Moreover, our field research challenges some long-standing prejudices, such as the lack of skill and frequent desertion of Czech soldiers, which have persisted since the 1920s. In addition, archeological evidence concerning WWII also emerged during our fieldwork, bringing hitherto unknown knowledge about the war, which was generally ignored by the Communist and post-socialist historiography.

53. MATERIALITIES OF EXCLUSION: ARCHAEOLOGY AND HERITAGE OF AUSTRO-HUNGARIAN PSYCHIATRIC INSTITUTIONS

Contribution format: Oral  
Contribution authors: Pamela Fragnoli (Austrian Archaeological Institute) – Maria Bianca D’Anna (Vienna Technical University)

Throughout their life-cycle, psychiatric institutions embody a complex and layered history of care, control, and societal exclusion. Drawing from archaeological and heritage studies, this paper examines how these sites function as spaces of contested memory and materialized ideologies, reflecting broader social and cultural dynamics. This study focuses on three Austrian institutions—the Narrenturm, Steinhof, and Gugging—as well as comparative examples from the former Austro-Hungarian territories, including the Bohnice Psychiatric Hospital in the Czech Republic and the Lipótméző National Lunatic Asylum in Hungary. These sites collectively trace the historical evolution of psychiatric care, from Enlightenment-era innovations in institutional design to 19th-century pavilion systems and the traumatic impact of Nazi policies, such as the so-called Aktion T4. Through an archaeological lens, the analysis emphasizes the materiality of these spaces—their architectural design, placement within the landscape, and surviving artifacts—as expressions of medical, social, and political ideologies. This paper also critically examines the heritagization and musealization of these sites, addressing how some have been abandoned or remain active, while others have been selectively incorporated into heritage narratives, often with fragmented or uncritical interpretations. By reflecting on these differences, this paper proposes a more cohesive and inclusive approach to the memorialization of psychiatric institutions. It highlights how archaeological and heritage practices can reveal silenced people but also narratives that continue to resonate in contemporary society particularly by addressing enduring misconceptions about mental illness.

1683. LANDSCAPES OF TERROR, LANDSCAPES OF REMEMBRANCE: INTERRELATIONS BETWEEN SITES OF VIOLENCE BY THE NAZI REGIME AND MEMORIALS TO ITS VICTIMS

Contribution format: Oral  
Contribution authors: Peter Hinterndorfer (Institut für jüdische Geschichte Österreichs)

During the seven years Austria was part of the National Socialist German Reich, functionaries and accomplices of the Nazi regime did not only install a large number of forced camps, but also exercised their power to terrorise, imprison, enslave and kill people at many other sites. Numerous memorials and monuments in public spaces commemorate the victims of National Socialism. Having been designed and built by different individuals, groups, administrative bodies or private initiatives since 1945, they appear in a variety of material forms, from memorial stones and plaques, to graves, sculptures and art installations, forming a diverse landscape of remembrance. While many memorials were erected in direct spatial reference to sites and infrastructures of terror and persecution, others have been set up in different spots, that are for example easier accessible, more public or were considered more appropriate or suitable. Some memorials also have been removed or relocated over the course of the years, sometimes including the exhumation of corresponding (mass) graves. This paper aims to discuss the material and spatial interrelations between places of nazi terror and sites of remembrance, highlighting examples from Austria.

2355. A COLD WAR HERITAGE ICON IN FLUX – THE SPATIAL TRANSFORMATION AND MEMORIALISATION OF CHECKPOINT CHARLIE

Contribution format: Oral  
Contribution authors: Diana Unterhitzzenberger (University of York)

In October 1961, it appeared as if the Cold War could turn hot when American and Soviet tanks faced off at Checkpoint Charlie, a crossing point of the Berlin Wall reserved for foreigners, diplomats and Allied military



personnel. The site garnered worldwide fame and has been considered a Cold War heritage icon ever since. In the years between 1961 and 1989, Checkpoint Charlie witnessed numerous successful and unsuccessful flight attempts, demonstrations and riots, but also millions of tourists and the Fall of the Berlin Wall in November 1989. As Berlin became a single city again and Germany reunified, Checkpoint Charlie was rendered obsolete as a border crossing point, and most of its physical structure was removed. By 2000, the few prominent elements that had remained were taken from the site to later be incorporated into an exhibition or to make space for a business centre, none of which has been realised to this day. This paper investigates a site of conflict eventually designated as an official heritage site despite its lack of substantial original structure. It focuses on different commemorative elements which have been added to the Checkpoint Charlie heritage site since the Fall of the Berlin Wall and have greatly influenced its appearance and perception. Furthermore, it investigates the role of archaeological surveys in the decision making on the long-term memorialisation of a site which has seen continuous change and ongoing debate regarding its appropriate management.

2450. NO BODY, NO CRIME: THE CHALLENGES OF COMMEMORATING SOUTHERN CONVICT LEASING WITHOUT HUMAN REMAINS

**Contribution format:** Oral  
**Contribution authors:** V. Camille Westmont (University of Alabama at Birmingham)

The transitory nature of the Southern convict lease system, a system of racialized forced prison labor in use until the mid-20th century, established a new form of enslavement in the post-emancipation United States South. This system was more brutal, dangerous, and deadly than that witnessed under US chattel slavery, a fact that has best been captured in a now-infamous 1885 interview quote: “These convicts, we don’t own ‘em... One dies, get another.” The high fatality rates have become one of the system’s most well-known features. Today, archaeology is playing a leading role in bringing this form of American oppression back into public memory. Major new sites in Tennessee, Texas, Georgia, and North Carolina have been identified in the last five years, in part through the efforts of historical archaeologists. However, as sites related to convict leasing continue to be identified, protected, and researched, a new and ethically complex issue is arising: the fate of prisoners’ remains who perished while incarcerated. Descendant communities and interested members of the public continue to highlight human remains as their top priority when discussing research questions and future memorialization. However, the realities of industrial landscapes, racial politics, and cemetery excavations have repeatedly pitted archaeologists’ recommendations against the desires of passionate and well-intended members of the public. This paper will explore the consequences of the “CSI effect” on the commemoration of the Southern convict lease system in the southern United States through a discussion of case study sites where the presence (or absence) of human remains has led to community tensions. The problems associated with fights over human remains and the problematic underlying implications of a focus on recovering bodies will be discussed. The paper will make recommendations on ways archaeologists can manage the expectation of stakeholder groups and reframe conversations about respect, dignity, and memory.

1259. MATERIAL AND IMMATERIAL: SPIRITS, STONES, AND THE MEMORIALIZATION OF JAPANESE AMERICAN INCARCERATION

**Contribution format:** Oral  
**Contribution authors:** Koji Lau-Ozawa (UCLA)

During World War II, over 125,000 people of Japanese ancestry were confined throughout the United States in purpose-built incarceration camps. Confronted with immense loss from their forced removal and confinement, Japanese Americans contended with poor living conditions, exploitative labor practices, and the continuous threat of violence. The intergenerational trauma from the years of incarceration lingers to the present day. Remarkably, Japanese Americans began commemorating their incarceration while still imprisoned, creating a landscape of ephemeral and monumental memorials. This material landscape continues to shape the ways in which survivor and descendant communities organize and relate to the memory of the incarceration. In this paper, I discuss the continuous dialogue between past and present memorial practices as Japanese Americans continue to process the history of incarceration through pilgrimages and visitations of past monuments, and an array of new memorial practices. Focusing in particular on two monuments at the Manzanar and Topaz Incarceration Camps, I discuss how the practices established by incarcerated themselves during their confinement still resonate materially and immaterially, and the attempts of contemporary heritage communities to redefine what a monument can look like.

2251. TESTIMONIES OF LIFE ON THE OBJECTS FROM THE DEATH PITS AND THEIR RE-PRESENTATION. LEXICON OF KATYN ARCHAEOLOGY

**Contribution format:** Poster  
**Contribution authors:** Magdalena Majorek-Lipowicz – Anna Zalewska – Olgierd Ławrynowicz (Institute of Archaeology, University of Lodz) – Aleksandra Krupa-Ławrynowicz – Sebastian Latocha

(Institute of Ethnology and Cultural Anthropology, University of Lodz) – Kacper Ciesielski (Katyn Museum in Warsaw, Branch of the Polish Army Museum)

The poster presents images of hand-made inscriptions on selected everyday objects found during exhumations and archaeological work on traces of the Katyn massacre. Material evidence of this war crime, committed by the Soviets against 22,000 Polish prisoners of war, includes objects on which inscriptions made by prisoners of war using the hand-engraving technique have survived. On objects made of metal, plastic or wood (e.g. cigarette boxes), iterations and designs can be read, which are a personal signature and testimony to the dramatic life of a prisoner of war. They are linked to the specificity of a particular community – prisoners of war who were murdered and buried in Katyn, Miednoye, Kharkiv and Bykivnia. On the basis of the research material collected during the implementation of the project “Lexicon of Katyn Archaeology 1990-2015” we have considered the expressiveness of this type of media on the following levels: lexical, semantic and graphic/artistic. We will show the relationships that result from the links between these levels, using specific examples of proper names, dates of events and symbols. In this perspective, we will show the results of attempts to read traces that lead from the traces of the prison reality, through the biographies of the victims, to the currently active symbols of the communities of memory. We will re-present the objects from death pits focusing on their agency as well as the carriers of camp inscriptions as the specific, multifaceted, dynamic phenomena with great potential for us and future generations to experience and remember.

177 DIGGING DEEPER: ARCHAEOLOGY AS A TOOL FOR SOCIAL CHANGE

**Session theme:** 4. De nobis fabula narratur: archaeological practice and a profession in flux  
**Session format:** Regular session  
**Session keywords:** nationalism, archaeological knowledge, societal challenges,  
**Session organisers:** Cristina Gameiro (UNiarQ - Centre for Archaeology, University of Lisbon) – Sérgio Gomes (CEAACP- University of Coimbra) – Rui Gomes Coelho (Department of Archaeology, Durham University | UNiarQ - Centre for Archaeology, University of Lisbon)

SESSION ABSTRACT

The 2024 European elections reveal a rising influence of far-right parties across Europe. Often characterized as part of a ‘new nationalism’ wave, these parties claim to represent the ‘pure people’, call for the restoration of national sovereignty (from supranational institutions) and promote ‘national preference’ by advocating stricter immigration and citizenship policies (Halikiopoulou & Vlandas, 2019). In such a political context, and regarding the deep connection between the politics of the past, present uncertainties and expectations for the future, how can archaeologists nurture a critical public sphere or create safe spaces to discuss? Archaeology has traditionally mediated narratives that normalise inequalities and legitimise dominant power structures. Archaeological knowledge has been mobilized to support populist narratives that promote the idea of a ‘golden age’ when a culture or nation was purportedly ‘pure’ and superior. It is also worth noting that such narratives entail the dehumanization of certain social groups, reinforcing prejudices and undermining social cohesion. Archaeologists have also critically evaluated historical contexts and documents, offering non-hegemonic perspectives about the past. For example, what more powerful tool could combat racial or ethnic discrimination than the understanding that, despite our diversity, all humans share the same origin and that, for the past 300,000 years, we have all belonged to the same species? Yet, we struggle to go beyond critiques when it comes to confront reactionary narratives. In this session, we aim to discuss how archaeological knowledge can be mobilized to challenge populist narratives and support a more informed and inclusive society. We seek contributions focusing on educational projects or community participation and encourage participants to showcase how their research is committed to a society grounded on values of social justice, equality and peace.

CONTRIBUTION ABSTRACTS

1475. DIGGING DEEPER: AN INTRODUCTION

**Contribution format:** Oral  
**Contribution authors:** Sérgio Gomes (CEAACP - University of Coimbra) – Cristina Gameiro (UNiarQ - University of Lisbon) – Rui Gomes Coelho (Department of Archaeology, Durham University)

The relationship between politics of the past, present uncertainties, and future expectations raises important questions about how archaeologists can challenge and transform biased, oversimplified portrayals of historical groups, events, and processes. This issue is widely discussed due to its significance in critically assessing archaeology’s role in legitimizing different ideas and narratives. However, it remains especially relevant as the cultural,



political, and social contexts that shape these discussions continue to evolve. From this perspective, values such as objectivity, political engagement, social justice, equality, freedom, and peace are not only fundamental social principles but also essential epistemic opportunities for archaeology as it redefines itself as a discipline. These values are applicable across diverse work contexts and can be meaningfully integrated into archaeological practices to foster more just, inclusive, and peaceful societies. This introduction provides a brief review of the literature on the topic, highlighting the importance of these concepts, their relevance across different archaeological settings, and their role in shaping a more socially engaged discipline.

2010. DIGGING DEEPER INTO MOTHERHOOD. AN APPROACH TO STRATEGIES OF CARE AND COOPERATION IN THE PORTUGUESE CHALCOLITHIC

Contribution format: Oral  
Contribution authors: Ana Vale (CITCEM/FLUP - University of Porto)

This paper aims to dig deeper into the social fabric of past human communities through the study of strategies of care, focusing on motherhood. Within the patriarchal structure, motherhood has been a factor of social difference between men and women in the past, based on established gender prejudices and stereotypes of motherhood that are highly penalising for women (in the past and present) and with deep historical roots (Federici, 2014). Feminist theories and the history of women have focused for long on the analysis of sexuality, (pro)creation and motherhood. However, it is still necessary today to dismantle the prejudices rooted in the archaeological tradition and contribute to a broader understanding of the networks of sociability based on care strategies, specifically during the Iberian Chalcolithic period (between 3200 and 2200 BC). Studies on motherhood in prehistoric archaeology are scarce and have little impact due to two main factors: (i) on the one hand, the (false) naturalisation of motherhood, which is considered a biological capacity inherent to the female body and therefore without interference from women and the need for historical contextualisation (ii) and on the other hand, the common acceptance of the rarity of archaeological objects and contexts that allow the study of mothering in archaeology. However, this study aims to draw attention to multiple possible motherhood strategies, like othermothering, in prehistory by analysing particular archaeological contexts in Portugal. It will also consider more inclusive and fairer images that could open up to other grammars for reading the past.

2113. FROM RESEARCH TO SOCIAL ACTION: A DISSEMINATION PROGRAM BASED ON THE PRE/PROTO-HISTORIC OCCUPATION AND ROMAN COLONIZATION EVIDENCE IN MURÇA (PORTUGAL)

Contribution format: Oral  
Contribution authors: Maria Sanches (Faculty of Arts and Humanities-Oporto University | CITCEM reseach Centre) – Miguel Almeida (Dryas | UNIARQ research centre) – Mónica Corga (Uniarq | Dryas/FCT)

Although, in the past, Archaeology was often mobilized to support political narratives of supposed golden ages of pristine nations, thus serving to legitimise the persistence of inequalities and iniquitous dominant political agendas (as was the case of Manuel Heleno’s programme for the National Archaeological Museum during the Portuguese dictatorship period), nowadays new nationalist wave sweeping across Europe calls on historians to actively participate in pivotal debates as sources of knowledge and reason about the evolution of past human societies. Because of its inherent materiality, narrative potential, and proximity to the terrain and populations, Archaeology should take on a significant part of this societal mission. Murça is a small, mostly agricultural, Portuguese municipality of c. 5k inhabitants where such biased perspectives have coupled the local verraco (= Porca de Murça), established as Murça’s ex-libris since the 19th century, with the romanised hillfort of Castelo dos Mouros do Cadaval, traditionally presented as the ancestral origin of Murça, despite no scientific arguments. Since then, three decades of Archaeological research have shed new light into the development of pre/proto-historic occupation and early roman colonization of the region. The challenge is now to convert this scientific knowledge into social action. A new research programme, “TSF” (= Territories with no borders), fostered by the municipality and engaging local schools, includes a bottom-up approach to educational programmes targeting the young student population, aiming to reinforce the community’s cultural identity, develop civic engagement and social tolerance, and promote the fixation of population and sustainable economic development through micro-entrepreneurship in the areas of CCI’s and endogenous productions. This communication will focus on:

- The state of our knowledge about the human occupation of the region since prehistoric times,
- Strategic goals of the dissemination programme, and
- Methods of engaging the students in expositive and immersive actions.

995. NECROPOLISES, IDENTITIES, ETHNICITY, AND POLITICS. INTERTWINED CONNECTIONS OF THE “VISIGOTHIC ARCHAEOLOGY” IN THE IBERIAN PENINSULA

Contribution format: Oral  
Contribution authors: Andreia Arezes (Faculty of Arts and Humanities - University of Porto | Transdisciplinary Culture, Space and Memory Research Centre)

The first half of the 20th century was pivotal in developing what is known as “Visigothic archaeology” in the Iberian Peninsula, particularly in Spain. The identification of vast necropolises classified as “Visigothic”, mainly in the area of the Castilian Meseta, the artefactual assemblages therein exhumed, the connotations with an alluring “barbarian” landscape, and the interest shown by foreign researchers, seem to have played a key role in in the constitution and consolidation of such a research field. The historical context experienced in Europe, in the shadow of the two brutal conflicts, indissociable of a nationalist ideological framework, and of the dissemination of lines of thought where ethnicity or particular identities were part of institutionalized narratives, marked how specific sectors of archaeology positioned themselves. The personal and institutional relationships established between Spain and Germany, especially from the 1930s onwards, have been under scrutiny in the last decades by various scholars. However, the depth and scope of the impact exerted by the complex conjuncture on the compromised focus of research, or the potential bias that may have arisen from these interactions, still require critical reflection. In this presentation, I will address the ambivalences of Portuguese archaeology during the Estado Novo dictatorship, discussing what kind of balance was established between the historiographical discourse and the materialities and to what extent archaeologists were caught within this research dynamics or developed a proper voice, on the fringes of the “air of time”.

1995. 50 LAYERS OF A REVOLUTION: PREHISTORIC ARCHAEOLOGY AFTER APRIL 25TH, 1974

Contribution format: Oral  
Contribution authors: Cristina Gameiro (Uniarq - Centro de Arqueologia da Universidade de Lisboa) – Sérgio Gomes (CEAACP- University of Coimbra) – Daniel Carvalho (Uniarq - Centro de Arqueologia da Universidade de Lisboa)

Portugal is celebrating the 50th anniversary of the Carnation Revolution (April 25, 1974). These celebrations aim to highlight the end of the dictatorship and commemorate key milestones, including the approval of the Constitution and the first legislative, presidential, regional, and local elections in 1976. The Resolution of the Council of Ministers emphasizes that “Portuguese democracy is inseparable from freedom and pluralism, decolonization and European integration, as well as cultural, social, and economic progress,” calling for inclusive celebrations that unite the Portuguese people around the conquest of freedom. This paper presents the project 50 Layers of a Revolution: Prehistoric Archaeology after April 25, 1974, developed as part of these commemorations. The project explores how prehistoric archaeology evolved after the Revolution, focusing on its political dimensions and how prehistorians contribute to consolidating democracy. It investigates how theoretical approaches, methodologies, and narratives reflect broader political and social transformations. Archaeology is closely tied to contemporary political and social issues. The topics prehistorians choose, the questions they pose, and their interpretations of archaeological evidence are shaped by historical circumstances, revealing the influence of political regimes and socio-cultural dynamics. Three key questions frame our research: How did narratives about prehistory change after 1974? To what extent do prehistorians situate their work within political contexts, consciously or unconsciously? And how can archaeology contribute to addressing democratic challenges today? By combining data science for narrative analysis and engaging the scientific community through four workshops and an exhibition, the project encourages reflection on archaeology’s civic role. Ultimately, it seeks to promote archaeology as a space for inclusive historical knowledge and inspire prehistorians to embrace their civic responsibilities.

1287. PREHISTORY, COMMUNICATION, AND SOCIAL CHANGE IN THE XXI CENTURY

Contribution format: Poster  
Contribution authors: Sara Cura (ICArEHB - Interdisciplinary Center for Archaeology and the Evolution of Human Behaviour) – Pedro Cura (Pre&Historic Skills)

Archaeology cannot commit to social change without effective communication. In the 21st century, this imperative becomes even more critical as pseudoarchaeology and misinformation proliferate, sometimes fueling xenophobic and nationalist movements. Popular media, such as the Netflix series Ancient Apocalypse, and the unregulated spread of content on platforms like YouTube, TikTok or Facebook, exploit the public’s fascination with prehistory to promote narratives that distort scientific understanding. Many of these narratives are rooted in ideas of cultural or racial superiority, echoing and reinforcing exclusionary ideologies that undermine social cohesion. This poster explores the role of archaeologists in challenging these reactionary narratives through proactive and accessible communication, using the project Pre&historic Skills and Comunicar Arqueologia as a case study. Pre&historic Skills, grounded on experimental archaeology, organizes and develops face to face



events in Schools, Museums, Festivals or Archaeologic Parks mobilizing and successfully engaging thousands of participants of all ages each year. Comunicar Arqueologia, on the other hand, leverages communication through public speaking, podcast, and newsletters. Booth projects demonstrate how archaeologists can engage diverse audiences and reclaim the narrative space and can counter misinformation and foster inclusive perspectives. To challenge pseudoarchaeology and misinformation effectively, archaeologists must move beyond critique and actively participate in shaping public discourse. Without this engagement, archaeology risks ceding its potential to address broader societal challenges such as climate change, environmental crises, migration debates, and the need for cultural diversity acceptance. By asserting its relevance through communication, archaeology becomes a tool for resisting populist ideologies and building a more informed, equitable society, truly achieving its social impact and therefore engage in social change.

2236. STRATEGIES FOR DISSEMINATION OF THE PREHISTORIC MONUMENT OF PRAIA DAS MAÇÃS (SINTRA, PORTUGAL)

**Contribution format:** Poster  
**Contribution authors:** Eduardo Porfirio (Câmara Municipal de Sintra | Centro de Estudos em Arqueologia Artes e Ciências do Património) – Catarina Costeira (Câmara Municipal de Sintra)

The Prehistoric Monument of Praia das Maças is situated on a small hill on the right bank of the Colares River, in the municipality of Sintra, and has been classified as a National Monument since 1974. This monument is a funerary complex, consisting of an artificial cave and a tholos with different phases of construction and use, from the end of the 4th to the 2nd millennium BC. It was identified in the 1920s, with archaeological excavations having been carried out in the 1960s/1970s. Since 2020, Sintra municipality has been promoting a conservation and restoration project for this monument, which includes extensive archaeological work, led by the municipal archaeology team. In parallel with this field work, a program to disseminate the results obtained was developed, organized around three major axes: a) scientific dissemination; b. participation of young students in archaeological work; c) guided and spontaneous visits to the site during and after the excavation work. In this poster we intend to present the results of the actions to disseminate this megalithic monument, reflecting on the potential and communicative challenges of a program developed in a local government context, financed by public funds, in a coastal settlement with a tourist vocation, but which aims to target the different communities that make up the society of the Sintra.

178 THE POWER OF PUBLIC ARCHAEOLOGY TO TACKLE THE SUSTAINABLE DEVELOPMENT GOALS

**Session theme:** 4. De nobis fabula narratur: archaeological practice and a profession in flux  
**Session format:** Regular session  
**Session keywords:** applied archaeology, public engagement, participatory approach, sustainable development goals, nature and heritage, co-design  
**Session organisers:** Lenore Thompson (University of Derby) – Veronica Testolini (Independent)  
**Session discussant:** Håkon Glørstad (University of Oslo, Museum of Cultural History, Historical Museum | Museum of the Viking Age)

SESSION ABSTRACT

This session aims to showcase the ability of archaeology as a discipline to address the challenges humanity is facing. Archaeologists can play a relevant role in informing decision-making and providing practical examples for building a sustainable future. Public archaeology, like its anthropological counterpart (Borofsky and De Lauri 2019), can support the achievement of the Sustainable Development Goals set by the United Nations in 2015. Case studies presented in previous EAA meetings have demonstrated the effectiveness of archaeological research in culture-based climate action (Davies et al. 2022), identity and heritage building (Atalay 2012, Downum and Price 1999), and finding sustainable economic alternatives (Cejuela et al. 2018). Moreover, archaeology holds a privileged position, being a discipline methodologically equipped to analyse past successes and failures. This provides the opportunity to build future-proof projects by applying lessons learned. Based on this rich portfolio of experiences (see Harrison et al. 2020), this session seeks to communicate the work public archaeology has done in recent years and what has been achieved by policymakers, the private sector, and wider publics based on this research. The aim is to encourage multiple sectors to include archaeologists in the process of building our future. This session welcomes papers presenting projects that have employed archaeology to tackle the Sustainable Development Goals, particularly: Goal 4 – Quality Education, Goal 9 – industry, Innovation and Infrastructure, Goal 10 – Reduced Inequality, Goal 11 – Sustainable Cities and Communities, Goal 12 – Responsible Consumption and Production, and Goal 13 – Climate Action.

CONTRIBUTION ABSTRACTS

974. A CRITICAL LOOK AT ARCHAEOLOGICAL SCIENCE FOR SUSTAINABILITY

**Contribution format:** Oral  
**Contribution authors:** Lenore Thompson (University of Derby) – Veronica Testolini (Independent)

The use of Archaeological Science in academic archaeology is increasingly common today and has the power to positively impact the public by enabling researchers to pursue new avenues of investigation and to reach a wider audience. However, researchers need to be aware of potential unintended consequences of applying archaeological science without clearly defined goals and ethical parameters. For example, undertaking unnecessarily expensive analysis can divert funds away from public projects, and the destructive nature of many analytical techniques can mean that heritage and history, valuable to creating meaningful social connections for the future, are lost. This paper will present examples of projects, co-created with publics beyond academia, in which thoughtful Archaeological Science has been used to contribute to the Sustainable Development Goals (SDGs). These projects range from exploring the establishment of heritage craft networks to build social cohesion within communities and support local economies (SDG 11.4), to investigations of pollutants generated during the Industrial Revolution in the UK with outcomes aimed at informing future heritage resource management policy (SDG 3.9 & 13.3). Within archaeological science, it is our duty to highlight and learn from both the successes and potential pitfalls of employing certain methodologies, or of the importance of designing projects with sustainability in mind. Archaeology as a discipline should be integral to the process of building a more sustainable future.

371. ARCHAEOLOGY AND THE CHALLENGE OF LONG-TERM COMMUNICATION: LESSONS FOR NUCLEAR WASTE MANAGEMENT

**Contribution format:** Oral  
**Contribution authors:** Cornelius Holtorf (Linnaeus University)

Archaeology is often valued for uncovering knowledge about the past but overlooked for its role in addressing present and future challenges. I see it instead as a powerful practice that helps us make sense of the world, ourselves, and each other—an essential tool for sustainable development and shaping the future. In this presentation, I explore how we can communicate messages across generations about deep geological repositories for nuclear waste (SDG 12.4: Responsible Management of Chemicals and Waste). From an archaeological perspective, I am skeptical about accurately transmitting knowledge across millennia, especially when the goal is to influence behavior rather than ensure precise understanding. Human perspectives and actions are always diverse, and the past is marked by continuous transformation. The key lesson from archaeology is therefore that long-term communication must work with change, not against it: facilitating adaptation rather than resisting it. A broader implication for archaeology in society is the need to ask more often not just what archaeological sites, objects, and associated ideas once were, but what they could (and should?) become.

1104. “MURI PER TUTTI”: WHEN ALL YOU NEED IS ARCHAEOLOGY

**Contribution format:** Oral  
**Contribution authors:** Valeria Di Cola (IES Abroad Rome)

In Rome, archaeology serves as powerful evidence of the Past, rather than facilitating effective interaction between the community and its rich historical landscape. Is it possible to foster a community around ancient walls and historical landscapes through social media? Can it evolve into a genuine community when typical engaging activities, such as excavations and university research projects, are unavailable? What objectives should be pursued? These are the questions I have sought to answer as an independent researcher since 2021, when I first launched a quiz on Instagram inviting the audience to identify a wall from ancient Ostia. The initial challenge was to build an audience from scratch as an individual with expertise in this field. Today, after three years of daily engagement, launching a personal blog, and creating a YouTube channel to enhance the communication strategy, the community surrounding the public archaeology project “Muri per tutti” has grown to nearly 2,000 members. The project has facilitated numerous interactions and opportunities to meet and explore the archaeology of Rome and its surroundings, fostering a collective process of learning ancient history alongside experts. To explore the tangible value of being in the field—not just in the digital realm—I have also initiated a program called “Muri e Marmi” (Walls and Marbles), in collaboration with Dr. Alessandro Mortera, an expert in marble decoration. We have conducted several explorations of archaeological sites varying in size and significance (including Villa Adriana, Villa dei Quintili and the Pantheon), where architecture and decorative elements were subject to interdisciplinary analysis. So far, the results have been encouraging, evidenced by the consistent increase in followers and supporters, as well as the identification of weaknesses in national and local heritage administration. Further, this endeavor reveals important insights regarding the role—and necessity—of archaeology in contemporary society and the key-role of the community.



2448. PUBLIC AND COMMUNITY ARCHEOLOGY FOR THE SUSTAINABLE DEVELOPMENT OF CULTURAL HERITAGE. CHALLENGES AND PERSPECTIVES IN CENTRAL SICILY

Contribution format: Oral  
Contribution authors: Daniela Patti (University Kore of Enna)

The peculiarity of our cultural heritage consists in the close relationship between the cultural assets and the landscape that now constitutes an essential element of our culture, our way of being, our “identity”. Several scholars insisted for a long time that the specificity of Italian cultural goods is constituted by the widespread presence, by the continuum of presences or goods, large and small, in cities, in the countryside, along the coasts. In accordance with this open and dynamic vision of cultural heritage, as expressed in the Faro Convention, it is necessary to promote the development of a shared awareness and public commitment. This can assist publics to recognise cultural and natural heritage as one’s own, without hierarchy. The development of the archaeological and architectural heritage, the landscape, its history, its nature is even more in the inland areas. The central Sicily is characterized by several archaeological records, with little-known topics, but related to a rich history, characterized by a flourishing economy based on agriculture mainly, but not exclusively cereal-growing, and on the exploitation of Sulphur mines. In recent years, this area already partly characterized by the youth migration, by the abandonment of the countryside, but also of the few urban centers, many of which of ancient origin, sign of a life in the ancient world until, at least, the repopulation of the XVIII century. In this context the public archaeology is a unapplied resource that could be used for to ensure a development of communities anchored on participatory approaches and stakeholder involvement.

2153. THE EXTREMO TERRITORY SCHOOL (ARCOS DE VALDEVEZ, PORTUGAL). AN ARCHAEOLOGICAL-ARCHITECTURAL APPROACH TO COMMUNITY RESEARCH ON THE LANDSCAPE

Contribution format: Oral  
Contribution authors: Rebeca Blanco-Rotea (Landscape, Heritage and Territory Laboratory, University of Minho) – Cidália Silva (Landscape, Heritage and Territory Laboratory, University of Minho | School of Architecture, Art and Design; University of Minho) – Marta Labastida (School of Architecture, Art and Design; University of Minho) – Emília Araújo (Institute of Social Sciences, University of Minho) – Sara Traba (University of Santiago de Compostela) – Célia Alves – João Alves – Rodrigo Pereira (School of Architecture, Art and Design; University of Minho)

This proposal seeks to describe and present the main reflections issued from ongoing participative research developed in the northern part of Portugal, involving archaeological findings. We have developed a series of archaeological research projects in the parish of Extremo (Arcos de Valdevez, Portugal) since 2018 addressing highly relevant patrimonial elements. Concepts of public and community archaeology, citizen science and living laboratories become pivotal in the research programme, which is focused on the different cultural landscapes of Extremo and their interrelationships; the contemporary problems affecting these rural and mountain landscapes; a heritage education programme; the processes of heritage and identity building through audiovisual tools; and the use of heritage as a sustainable resource. We believe that its continuity is due to three aspects: the combined work between materiality, immateriality and historical documentation; the interdisciplinary, multi-scale and multi-agent approach (researchers, teachers, students, local and municipal agents, community...); and above all, the incorporation of the community in the processes of knowledge production, through the implementation of methods for co-creation and co-participation. We are currently immersed in a project to build a territorial school based on these principles, which recovers heritage elements in a sustainable way, combining formal and non-formal training, sustainability, innovation and heritage education: a project based on the past to build the future collectively. In this communication we will give an account of the approaches, the process and the results of this transversal and participative project.

2047. SAFEGUARDING ARCHAEOLOGICAL HERITAGE IN AFFORESTATION AND REFORESTATION PROJECTS

Contribution format: Oral  
Contribution authors: João Marques (Património Cultural, Instituto Público | CEAACP - Centro de Estudos em Arqueologia, Artes e Ciências do Património) – Filipa Bragança (Património Cultural, Instituto Público) – Samuel Melro (CCDR Alentejo | UNIARQ)

This proposal will seek to establish a relationship between Portuguese legislation for safeguarding archaeological heritage in afforestation and reforestation projects and the guidelines for technical procedures for safeguarding archaeological heritage in the context of afforestation and reforestation projects. Forestry projects represent

a high value in the Portuguese economy, but its undeniable that they pose a significant threat to these heritage elements. According to the current environmental impact assessment (EIA) legislation, given the minimum size of projects covered by it until December 2023, out of a total of 3,690 projects subject to EIA, with an Environmental Impact Statement issued, only 33 projects are forestry or agroforestry projects. Of these, only ten dated from after the 1990s. The Guidelines for Archaeological Heritage in the Environmental Factor Cultural Heritage in Environmental Impact Assessment - of 29 March 2023, which, under the terms of the EIA’s Legal Framework, covers agricultural development projects and afforestation and reforestation, if they involve replacing pre-existing species, in isolated or continuous areas, with fast-growing species and deforestation intended for conversion to another type of land use. Although, Portugal has consolidated legislation on Cultural Heritage since 2001 and a forestry legislation that imposes some specific preventive measures for archaeological heritage, namely in the Regional Forestry Management Programmes (PROF), the protection of this finite and non-renewable heritage resource falls far short of what is needed because many of these projects fall outside this scope and no prior characterisation work are required. To fill this gap and standardise procedures in all regions of continental Portugal, the cultural heritage administration has produced a set of guidelines for safeguarding archaeological heritage, to be implemented in afforestation and reforestation projects using impactful soil mobilisation techniques, namely: stone removal works, heavy mechanical scarification, subsoiling, ground levelling, mega ridges-furrows, and terracing, among others.

956. THE ECONOMIC CONTRIBUTION OF ARCHEOLOGY BEYOND TOURISM: THE EXAMPLE OF A MICRO-BUSINESS BASED ON EXPERIMENTAL ARCHAEOLOGY

Contribution format: Oral  
Contribution authors: Giovanni Sartori (Ca’ Foscari University (Venice))

Among the scientific disciplines, archaeology is often considered an economically unsustainable branch, and funding for this science is increasingly rare. Except for the exploitation at the tourism level that can be done with a site or artifact, governments and public institutions seem to overlook further economic benefits provided by archaeology. My intervention aims to clarify, through my personal experience as a micro-entrepreneur, the economic value that archaeology can represent in various fields not strictly connected to it: social, educational, scientific, artisanal, and industrial (SDG 8.3). As a professional, I provide consulting and research in the field of archaeometallurgy for businesses and public institutions (universities and museums), and archaeology is indeed a fundamental component of my business. My approach, which follows the principles of experimental archaeology, bases its economic value on know-how developed through the collection and processing of data at a multidisciplinary level. Archaeological research constitutes one of the main references of my theoretical background. The projects I manage in the educational field, through collaborations with museums and universities, promote the recovery and safeguarding of traditional metallurgical know-how. The awareness of a craft and manufacturing tradition to be preserved, achieved through object-based learning, can be an effective tool for addressing crises of identity and demographic challenges that developed countries are already facing (SDG 4.7). Finally, archaeometallurgy and experimental archaeology are unexpectedly proving to be useful tools in supporting challenges related to renewability and sustainability in the steel industry (SDG 7.3, 7.a, 12.2).

179 DISSEMINATION IN ARCHAEOLOGY: FROM SCIENCE TO THE MASSES

Session theme: 6. Intertwining archaeology, heritage, and museums  
Session format: Regular session  
Session keywords: Dissemination, Archaeology, Multi-level communication, Historical narratives, Social media  
Session organisers: Cynthia González-Olivares (Fundación Palarq | Seminari d’Estudis i Recerques Prehistòriques (SERP), University of Barcelona | Institute of Archaeology (IAUB), University of Barcelona) – Nicola Scheyhing (Independent | Kulturbetriebe Burgenlandkreis GmbH)

SESSION ABSTRACT

One of the primary objectives of archaeology as a discipline is to construct historical narratives based on the analysis of material remains. However, beyond the critical realm of research, the role of archaeologists extends significantly to the communication of their findings to various sectors of society. In contemporary academia, much emphasis is placed on ethics and scientific rigor when publishing scholarly articles. However, the communication of archaeological knowledge to a wider public is often a neglected aspect of our professional responsibilities. Rapidly advancing technology and artificial intelligence equips us with powerful tools that can enhance our ability to engage the public. These allow us to present the advances and discoveries of our discipline in more



accessible and engaging formats. In this context, the reach of social media within archaeology represents a vital opportunity to invigorate research efforts and foster greater public interest in our field. This session aims to bring together current projects on archaeological outreach through multilevel multimedia formats -traditional and social media- and to critically evaluate the strengths and weaknesses that these formats currently have. In addition, it aims to recognize the main concerns surrounding this area of engagement, analyze the current situation of archaeological outreach, and explore new strategies adapted to the message and audience to be reached. By facilitating dialogue among practitioners in the field, we hope to explore effective tactics for bridging the gap between academic research and public understanding by bringing together synergies of archaeology and communication experts. Ultimately, one goal of the session shall be to promote a more inclusive appreciation of archaeology, as well as to create a deeper connection between researchers, the best practices employed in professional communication, and the diverse communities they serve, and in doing so, to bring greater recognition to the work of outreach in the scientific endeavor.

CONTRIBUTION ABSTRACTS

31. ENGAGING PORTUGUESE SPEAKING AUDIENCES IN PREHISTORY TROUGH PODCASTING AND SOCIAL MEDIA

**Contribution format:** Oral  
**Contribution authors:** Sara Cura (ICaREHB - Interdisciplinary Center for Archaeology and the Evolution of Human Behaviour)

The podcast Let’s Rock – Um Podcast da Idade da Pedra serves as an innovative platform for disseminating archaeological knowledge, specifically focused on Prehistory, to Portuguese-speaking audiences. Combining interviews with researchers from diverse subfields—such as geoarchaeology, bioarchaeology, lithic studies, DNA analysis, zooarchaeology, Rock Art or Experimental Archaeology—with immersive storytelling, the podcast promotes both scientific culture and scientific literacy and public engagement. By exploring how research is conducted and presenting the individuals behind the science, it humanizes archaeological work while making complex ideas accessible to a non-specialist audience. With over 5,000 reproductions of its 24 episodes, hundreds of followers on Spotify and significant engagement on social media, the podcast demonstrates the potential of audio media to attract audiences traditionally underrepresented in archaeological outreach and science communication. Listener feedback highlights the importance of making high-quality content available in Portuguese, meeting a growing demand for archaeology dissemination contents. Podcasts, as a flexible and intimate format, are particularly well-suited for addressing this gap, allowing for deeper connection with diverse audiences. This presentation will examine the strengths and challenges of podcasting as an engagement and science communication tool, particularly in fostering public understanding of archaeology as a interdisciplinary science. It will also explore the challenges of marketing the podcast on social media while being an independent project. By focusing on digital engagement and tailored messaging, Let’s Rock aligns with the session’s aim of evaluating multimedia strategies in archaeological outreach. The project demonstrates how creative, localized initiatives can bridge the gap between academic research and public knowledge, offering a model for inclusive and impactful communication.

197. DISSEMINATION ON TII PROJECTS - OPPORTUNITIES AND CHALLENGES

**Contribution format:** Oral  
**Contribution authors:** Ronan Swan (TII)

TII (Transport Infrastructure Ireland) is a stage agency in Ireland, responsible for delivery of national road, greenway and public transport projects. One of TII’s strategic objectives is to communicate with the communities affected by our schemes. For the communication of archaeology, TII adopts a range of approaches suiting different audiences. From traditional site visits and public talks, to on-line videos and storymap. to exhibitions and books. On-line story maps bring together the results of particular schemes using maps, videos, text highlighting not only the initial discovery and excavation but also the post-excavation specialist analyses and conclusions. While audiobooks can provide a synthesis of the archaeological result. in innovative and engaging ways whether through fictional narratives e.g. The Unsilent Stones, Athlone Abbey Graveyard , or by inviting local communities to respond to the archaeology emerging results e.g. Buttevant Heritage Trail. TII also has a strong record of publication with 46 books to-date (including 9 accessible as PDF and ePubs). These and other resources are all available from TII’s website <https://www.tii.ie/en/technical-services/archaeology>, grounded in the primary ‘grey-literature’ which is freely accessible on TII’s Digital Heritage Collections (<https://repository.dri.ie/catalog/v6936m966>). In this paper I will discuss some of the drivers that underpin our overarching communication strategy especially our quality contracts, which mandate dissemination throughout the life of a project. I will also highlight some of the synergies that occur from working with different stakeholders (archaeological consultancies, local authorities, local societies, national agencies and universities) and how we can successfully facilitate dialogue between these different groups. Ultimately, this presentation will provide examples of how multilevel

multimedia formats allied to traditional means of communication can be successfully achieved, and how adopting a holistic approach can lead to a range of successful outcomes both in the short and long term.

2119. PICTURE THAT! GENAI AND THE VISUAL PICTURE OF THE PAST IN DISSEMINATION OF ARCHAEOLOGICAL RESEARCH

**Contribution format:** Oral  
**Contribution authors:** Nicola Scheyhing (Independent Researcher | Kulturbetriebe Burgenlandkreis GmbH, Arche Nebra)

One of the most impactful tools for disseminating research of the past is the creation of images. Reconstructions based on interpretations of scientific knowledge have a long history in museum presentations, publications, and other media addressing the public. They function as an additional form of expression, as well as an implement to generate an emotional response from the observer. Images have also long been used to influence and direct emotions towards certain causes. Curators, publishing academics, and science communicators are long aware of the possible pitfalls of the creation of visual reconstructions as well as their fortitudes. The last couple of years have seen a plethora of discussions and projects on the creation of realistic images of the past, on the role of diverse reconstructions, the imbalance of representation of women, children, elderly people, individuals with disabilities, skin color, etc. With the latest developments, though, it seems like a significant shift has happened again with the newly found possibilities Generative Artificial Intelligence is offering for the creation of images. Easy to train and use, GenAI seems to offer an opportunity not only for self-pronounced history buffs online to cater to the steadily growing number of media channels courting attention online but also to professionals. With the ever-present challenge of a lack of funding for outreach, publication projects, exhibitions, or the creation of marketing materials, the possibility of creating reconstructions without the additional costs and time necessary to collaborate with human creators is a major drawing point. But at what cost. In my presentation I want to give perspective on the current state of reconstructions of the past created by GenAI, cases of usage, and what might be worth considering regarding their application from the perspective of a science communicator.

143. THE PALARQ FOUNDATION AND ITS ROLE IN THE DISSEMINATION OF SPANISH ARCHAEOLOGY

**Contribution format:** Oral  
**Contribution authors:** Lourdes Palomo (Fundación Palarq) – Cynthia González (Fundación Palarq | SERP-IAUB, Universitat de Barcelona)

Palarq Foundation is a private, non-profit organization created with the aim of supporting missions in Spanish Archaeology and Human Palaeontology –more than 600 projects–, within a perspective that ranges from the palaeontological stage to prehistoric and historical periods of monumental interest. In addition, Palarq Foundation gives financial support for archaeometric analysis applied in Spanish sites. With the aim of generating interest in archaeology and human paleontology in society and among young people, in 2021 the project of creating content for social networks, in particular Youtube and Tik Tok, was initiated. The goal is to reach young people in a rigorous and, at the same time, motivating way. Our channels are nourished with scientific information that with the visible faces of the cultural influencers Pakozoico and JJprieo convey this information in a more entertaining language. In January 2024 we started the videopodcast format in collaboration with National Geographic History, where prestigious researchers and public figures talk about a topic connecting the past with the present, while maintaining scientific rigor. The intention is to penetrate other sectors of the population and bring these disciplines closer to the present. After an analysis of the results obtained in these networks, an audience of more than 2.5 million monthly views (more than 30 million per year) has been reached, with an average age of 25 years. This shows a high interest in archaeological and paleontological heritage and contributes to strengthening the presence of these disciplines in new forms of communication. This session, therefore, aims to present a case of success in the dissemination of archaeology and human paleontology.

1261. BRIDGING THE WORLDS OF THE LIVING AND THE DEAD: A PROPOSAL FOR THE DISSEMINATION OF MENORCA’S PREHISTORIC ROCK- CUT TOMBS

**Contribution format:** Oral  
**Contribution authors:** Sonia Carbonell Pastor (Grup de Recerca en Arqueologia Protohistòrica (GRAP) | University of Barcelona (UB))

Necropolises reflect the values, beliefs and symbolism of the living communities that created and used them. However, the musealisation of these spaces poses major challenges, especially when it comes to making them accessible to the general public. Unlike prehistoric settlements, which have a variety of functional areas, including domestic spaces, production areas and defensive structures such as towers or walls, burial sites are often perceived as empty spaces, mere cavities or holes carved into the rock where the deceased were laid to rest. Menorca’s rock-cut tombs, dating back to the first millennium BCE, are chamber tombs carved into the rock



and represent a particular challenge for heritage management. Although some guided tours and internal visitor routes have been developed, the general public still has a limited and fragmented understanding of the burial practices and rituals that took place in these spaces. Museums also struggle to convey the spatial and architectural complexity of these burial caves. The burial chambers are often subdivided by embedded pilasters and/or freestanding pillars, which influenced internal circulation and movement. This presentation will offer a proposal for the dissemination and interpretation of these spaces. Firstly, we will outline an approach to on-site heritage management using Augmented Reality technologies. In addition, we will propose a strategy for enhancing the understanding of these burial spaces in museums and interpretation centres through 3D printed models.

2256. EYES AND EARS: USING PODCASTS AND VIDEO CONTENT FOR PUBLIC ARCHAEOLOGICAL DISSEMINATION

**Contribution format:** Oral  
**Contribution authors:** Matilda Siebrecht (APN | EXARC) – Raven Todd Dasilva (Independent)

One of the central criticisms of academia is the lack of approachability and accessibility. Research conferences are often restricted by registration fees that are unaffordable to those without an institutional affiliation. Research positions demand logistical flexibility, adding complications to those with families or other personal ties. Academic papers are too often hidden behind a paywall or else made incomprehensible by scientific jargon to those outside the field. However, research grants and fellowships increasingly acknowledge the importance of approachable and accessible research dissemination, which allows academics to allocate resources to such outreach. Nevertheless, the successful implementation of this outreach requires an understanding of the advantages and disadvantages of each platform, and the ability to decide which one is right for a particular project. In this paper, we present several examples of long form content in both audio (podcasting) and visual (YouTube) form, and compare this with the possibilities offered by short form content in the form of social media.

1503. ENHANCING PUBLIC ENGAGEMENT WITH PREHISTORY: DIGITAL STRATEGIES FOR CONNECTING ARCHAEOLOGY WITH MUSEUM AUDIENCES

**Contribution format:** Oral  
**Contribution authors:** Carine Souza (UNIARQ - Centre for Archaeology of the University of Lisbon | FCT - Foundation for Science and Technology, Portugal | MNA - National Museum of Archaeology, Portugal) – Ana Albuquerque Pinto (CREA School, Omnes Éducation, Suisse)

One of the primary responsibilities of Archaeology is to disseminate its knowledge to diverse audiences. When it comes to Prehistory effectively communicating this knowledge remains a challenge. The public often perceives Prehistory through stereotypes or non-scientific interpretations, which hinders a deeper understanding of its significance. Reshaping these perceptions requires innovative strategies that bridge the gap between academic rigour and effective public engagement. Through an interdisciplinary collaboration between an archaeologist/museologist and a digital communication expert, this research applies digital strategies to examine how audiences engage with Archaeology, particularly Prehistory, and how communication can be enhanced to foster deeper connections. A key component of this approach is the development of audience personas – representative profiles that reflect different ways people interact with Archaeology – allowing for content to be tailored to their interests and behaviours. By analysing social media trends, Google Insights, and audience behaviour, this study identifies what truly captures public attention in Archaeology and Prehistory. These insights enable the development of targeted, engaging strategies that employ SEO techniques, customised content, and audience segmentation. Digital platforms, particularly social media, could serve as significant channels for making Archaeology more accessible and interactive. This presentation examines the potential of digital tools in enhancing communication strategies for museums and cultural institutions, moving beyond traditional methods to create narratives that not only inform but also captivated. Museums, as dynamic communication platforms, have the capacity to reach diverse audiences and facilitate meaningful interaction. Meanwhile, digital strategies are not solely concerned with outreach; they seek to integrate audiences into an ongoing dialogue. In this regard, the data obtained from this study are relevant for developing targeted communication strategies, demonstrating that by fostering curiosity and emotional connections with Prehistory, museums can transform scientific research into compelling stories that resonate with contemporary audiences.

1189. ARCHAEOLOGISTS SIFTING THROUGH TRASH: FROM PALEOLITHIC WASTE TO CONTEMPORARY CHALLENGES

**Contribution format:** Oral  
**Contribution authors:** Maria Joana Gabucio – Patricia Martín (Institut Catala de Paleoecologia Humana i Evolució Social (IPHES-CERCA) | Universitat Rovira i virgili (URV)) – Ana Abrunhosa

(Institut Catala de Paleoecologia Humana i Evolució Social (IPHES-CERCA) | Universitat Rovira i virgili (URV) | Interdisciplinary Center for Archaeology and Evolution of Human Behaviour (ICArEHB)) – Andrea Alías (Institut Catala de Paleoecologia Humana i Evolució Social (IPHES-CERCA) | Universitat Rovira i virgili (URV))

Archaeological remains are essentially the refuse of the past. For this reason, understanding how past societies managed their waste is essential for correctly interpreting the archaeological record. However, this topic has received little attention from archaeologists and is rarely communicated to the public, particularly in the case of Prehistory. Over the past five years, we have developed the outreach programme Arqueòlogues remenant brossa (Archaeologists Sifting Through Trash), which explores the parallels between waste management in the past and the present. Its main objectives are: (1) to disseminate current knowledge on cleaning practices, the space maintenance, and waste management during Prehistory; and (2) to foster a deeper reflection on the waste management practices we implement today. In doing so, we also aim to help raise awareness of one of the most pressing contemporary challenges, as recognised in the Sustainable Development Goals (SDGs) of the United Nations 2030 Agenda. To achieve these objectives, we have designed an interactive and immersive workshop, aimed at both families and school groups, as well as talks targeted at the general public. Both the workshop and the talks have been implemented in several outreach programmes, both national and international, such as the European Researchers’ Night (2020, 2022), the Festa de la Ciència (Barcelona, 2024), #científiques (2025), Espaiciència (2025), Pint of Science (2025) and IPHES at the Schools (Ongoing). The workshop has been well received, both for the general public as well as in a school setting, which has been adapted for both primary and secondary education centres. Currently, we are seeking funding to expand and diversify this outreach project.

2179. CONCIENCIA HISTÓRICA, A CULTURAL SPACE TO DISSEMINATE ARCHAEOLOGY AND HERITAGE IN RURAL AREAS

**Contribution format:** Oral  
**Contribution authors:** Patricia Aparicio Martínez (University of Toronto, Canada | Pontificia Universidad Católica del Perú) – María Fernández Mier – Jose Delgado Arcos – Paloma Sánchez-Broch (University of Oviedo) – Pablo López Gómez (University of Leon)

One of the big challenges of archaeology today is to disseminate research to awaken the interest in History and Heritage to a broad public. Captivating attention to different audiences is not easy and it is required to develop different communication strategies. After several years of study and thanks to the link created in the rural territories we work. The research group LLABOR-Social Landscapes from the University of Oviedo started to think about how we could transfer the knowledge of our research and how to get involved in local communities. Therefore, since 2018 we have created a cultural space through it, we design different activities to involve local cultural heritage to the inhabitants where we carry out our research, fostering attachment to the territory and trying to promote scientific vocations. This cultural space is called ConCiencia Histórica, where we use different strategies to spread our findings. The main objective of our research projects is to study ancient rural societies from their landscape in a diachronic manner and we use archaeology as a tool for knowledge transfer and scientific dissemination in these areas, mainly in the North of Iberian Peninsula and in the South-Central Andes of Peru. In this talk we will review several activities and programs that we have developed through this cultural platform, disseminating research results and returning the research to the communities we mainly work with. We will analyze the appropriateness of these activities and their impact to spread archeological research on rural communities and beyond.

1973. EXPLORING COLOMBIAN INÍRIDA RIVER ENGRAVINGS, BETWEEN THE PAST AND PRESENT

**Contribution format:** Oral  
**Contribution authors:** Carmen Perez Maestro (Research center and ecomuseum La Ponte) – Primitiva Bueno Ramirez (University of Alcalá) – Natalia Lozada Mendieta (Universidad de los Andes) – Monica Bran Pérez – Diana Mendoza León – Ainara Cano Echeberria (Independent)

The research project on the rock art of the Inírida River in Colombia is a crucial effort in a challenging area that goes beyond mere documentation. One of its primary objectives is to disseminate knowledge among communities, especially those in remote areas where access to archaeological and historical information is often limited. Research projects have a responsibility not only to study archaeological materiality but also to ensure that their findings are communicated effectively and accessibly to the people living in these regions. This strategy is essential for fostering social appropriation, a process through which local populations recognize and value their own cultural heritage. Similarly, oral traditions enrich researchers’ understanding of material culture and its role in the present. Without this connection between archaeological remains and local communities, conservation and protection efforts risk becoming unsustainable in the long term. To achieve this, the project helps bridge the gap between scientific research and public engagement. By integrating these approaches, the engravings



of the Inírida River can become more than just remnants of the past; they will be living cultural elements that strengthen identity, promote heritage conservation, and ensure that future generations continue to appreciate and protect them. The assemblies with indigenous communities, workshops and talks in educational centers, the recording of audiovisual capsules, and the creation of educational booklets are some of the activities related to the on-site dissemination of the archaeological project.

1766. OPENING HERITAGE: EXPERIENCES OF DISSEMINATION AND VALORISATION OF CULTURAL HERITAGE (INCIPIT-CSIC)

**Contribution format:** Oral  
**Contribution authors:** Yolanda Seoane-Veiga – David Barreiro (Institute of Heritage Sciences (INCIPIT-CSIC))

From the beginning, the Institute of Heritage Sciences (INCIPIT-CSIC) has developed different dissemination strategies to bring science and cultural heritage closer to society. It seeks not only to expand access to general knowledge but also to encourage citizen participation and the inclusion of groups with greater difficulties in accessing heritage and scientific values. Our own programmes with associations such as Down Compostela or FAGAL (Alzheimer Galician Federation) are proof of this purpose. This viewpoint is currently reflected in the activity of the institute’s Valorisation Unit, which develops and coordinates the dissemination actions carried out at the centre, trying to find a balance between bottom-up initiatives (from society to institutions) and the traditionally predominant top-down ones (from institutions to society), convinced that the active participation of society is key to creating a long-lasting bond with the community. The Unit is now involved in Cultur-Monts, an Interreg Project to enhance the heritage associated with mountain cultural landscapes to offer new development opportunities to mountain communities, improving their quality of life, territorial cohesion, boosting the self-esteem of the local population and increasing the capacity of public bodies to attract visitors, integrate new populations and attract young people to their territories. To conclude, INCIPIT remains committed to exploring innovative, inclusive, and effective ways of disseminating and outreaching cultural heritage, which is why we would like to present our approach and experiences in the valorisation of cultural heritage, to contribute to the debate and rethink aspects linked to the how we should improve dissemination methodologies: from the way we accompany the various collectives how we should effectively evaluate projects. The most recent example is “Root Women”, a project of citizen science with rural women of advanced age or with cognitive impairment, for the recovery of the musical heritage associated with trades.

88. FROM EXCAVATION TO A VIRTUAL JOURNEY: EXPLORING THE MEDIEVAL MONASTERY OF SANT GENÍS DE ROCAFORT USING VIRTUAL REALITY

**Contribution format:** Poster  
**Contribution authors:** Sonia Medina Gordo (Universitat de Barcelona | Centre d’Estudis Martorellencs) – Isidre Ot Padilla (Virtual Past) – Pablo Del Fresno Bernal (Sistemes de Gestió de Patrimoni SCCL) – Josep Socorregut Domènech (Universitat de Barcelona | Sistemes de Gestió de Patrimoni SCCL)

The Sant Genís de Rocafort monastery, located in Martorell (Baix Llobregat), has been the subject of archaeological excavation since 2014. The effects of systematic looting and centuries of abandonment have concealed the monument’s structures, which cover nearly the entire area enclosed by a wall surrounding the hill where the Romanesque church stands. Recent excavations have unearthed monastic buildings from the Romanesque period and earlier elements, contributing new knowledge to the current academic understanding of the site. Despite its significance, the monastery’s remains form a heritage ensemble that is difficult to access due to the site’s location atop a hill. To address this, our research team has developed a digital twin of the monastery. This digital resource offers great potential not only for basic research but also for public outreach and knowledge dissemination. Sant Genís’s digital twin is at the centre of a broader initiative: a virtual exhibition using augmented reality, where visitors can explore the archaeological site and learn about its history through interactive panels and resources, all within a virtual environment. This project has enabled us to engage audiences who otherwise might never have been able to visit the site, making the monastery’s heritage accessible to a wider public. However, the development of such an ambitious project has also raised challenges and questions, particularly regarding the choices made in selecting certain dissemination strategies and adapting the historical narrative for different audiences. This poster will present the results of this work, reflect on the difficulties encountered, and discuss how technology, particularly augmented reality, can serve as a powerful tool in the dissemination and democratization of archaeological heritage.

1175. LET’S DIFFUSE SCIENCE ALONG A SOUTH BRAZILIAN RIVER! BUT HOW AND FOR WHO?

**Contribution format:** Poster  
**Contribution authors:** Alejandra Ordóñez (Universidad de Las Palmas de Gran Canaria) – Lucas Bueno – Gabriela Oppitz – Fabiana Merencio Terhaag – Thiago Umberto Pereira – Matheus Fedechen – Lorena Ferreira Nogueira (Universidade Federal de Santa Catarina) – Simon-Pierre Gilson (Universidad de Las Palmas de Gran Canaria)

When sharing archaeological results, we must consider our diverse audiences and design effective outreach strategies. This task becomes more complex when engaging with different stakeholders in the same areas where we operate. Thus, we carry the obligation to shape our narratives thoughtfully. This is crucial from both an ethical and scientific standpoint, as our discussions can have political ramifications. Science now plays a significant political role, especially in archaeological studies in former colonial regions. In this poster, we outline our research strategy for the Pedra de Amolar site, which is part of a larger project in the Valley of Itajaí (Brazil). This site is a funerary shell midden, dated back to 6,000 to 7,000 years CalBP, and belongs to the Sambaqui tradition. The connections between this archaeological context and contemporary Indigenous groups are still under investigation. Nevertheless, these sites are acknowledged as meaningful places to these groups’ profound historical narrative and their traditional lands. The European colonization of this region is relatively recent, dating back to 19th century, with a last wave of migration following World War II. This was a violent process, leading to intense conflicts regarding the use and occupation of indigenous traditional lands. This context means that recognizing Indigenous Lands and Rights remains contentious and has occasionally led to violent confrontations. Thus, while discussing outreach, we must recognize two distinct audiences: the Indigenous population and the descendants of colonizers, each requiring tailored approaches. For the Indigenous population, we advocate for a collaborative archaeology framework that involves community participation not only in communicating findings but also in the design and implementation of research. For the non-indigenous population, our role is to create outreach initiatives that encourage them to understand the various historical narratives and recognize Deep History as an essential part of Brazil’s heritage.

1301. EXPERIENCING THE PAST: EXPERIMENTAL ARCHAEOLOGY FOR INCLUSIVE DISSEMINATION

**Contribution format:** Poster  
**Contribution authors:** Annamaria Daniele – Francesco Lucchini (Sapienza University of Rome, Department of Antiquity)

This work presents an archaeological dissemination project that integrates experimental archaeology in two distinct contexts—a retirement home and a high school—highlighting its potential as a dynamic and inclusive communication tool. The initiative was carried out using hands-on experimental protocols for the production of prehistoric pottery, adapted to meet the unique needs of each environment and audience. The experimental sessions demonstrated notable therapeutic and cognitive benefits in the retirement home. The elderly participants experienced improved social interaction, rekindled memories, and a renewed sense of purpose. By directly engaging with prehistoric crafts, they established creative links to the distant past, promoting mental well-being and fostering a sense of fulfilment. In high schools, the project aimed to address a gap in the curriculum, where prehistory is often overlooked in favour of later periods. Through these interactive, hands-on activities, students were able to touch and experience the past directly. The experiential learning sessions provided students with a tangible connection to prehistoric human development, encouraging them to broaden their historical perspectives and develop critical thinking skills. The project highlights the successes and challenges encountered along the way and explores how similar initiatives could be expanded to reach more communities. By tailoring archaeological outreach to different audiences, the project demonstrates how experimental archaeology can serve as a bridge between academic research and public understanding. Ultimately, this initiative offers a pathway towards a more inclusive appreciation of often-overlooked periods of human history, enriching both education and community engagement.

1478. DISSEMINATING NEOLITHIC DOLMENS THROUGH IMMERSIVE 3D VIDEO GAMES

**Contribution format:** Poster  
**Contribution authors:** Mikkel Nørtoft (Section for Archaeology, Saxo Institute, University of Copenhagen/Copenhagen School of Archaeology) – Daniela Hofmann (Department of Archaeology, History, Cultural studies and Religion, University of Bergen) – Rune Iversen (Section for Archaeology, Saxo Institute, University of Copenhagen/Copenhagen School of Archaeology)

Video games are becoming powerful media for heritage dissemination, shifting from industry-led projects to archaeologist-created interactive experiences. Using free tools, we, with no experience in game development,



created a 3D game featuring photogrammetry-modeled Neolithic dolmens and AI-driven NPCs engaging players in dynamic oral conversations about the past. Our case study focuses on the Neolithic long dolmens at Lindeskov Hestehave, Funen, Denmark (in connection with the Deep Histories of Migration project). We created photogrammetry models of these long dolmens (using Reality Capture), integrated them into Unreal Engine 5.4, and created AI-powered NPCs (using Metahuman) conversing freely from their dedicated backstories, personalities, and knowledge (using Convai and ChatGPT 4o-mini). Players engage with our NPCs embodying different perspectives—scientific archaeology vs. spiritual experience—while exploring the dolmens in an immersive, fog-shrouded forest-clearing or passing through a dolmen to experience an “afterlife” world. Preliminary testing (10 players, 8 sessions) showed rapid engagement, with players adopting diverse interaction styles—from role-playing to critical questioning. The NPCs “Dolmen Guy” and “Dolmen Debbie” successfully conveyed archaeological knowledge, and were continuously updated to ensure accuracy and immersion. Our proof-of-concept highlights the feasibility of archaeologist- developed video games using free tools, with great potential for museums and other digital heritage outreach. AI-driven NPCs offer a flexible format for engagement but require careful narrative management. To limit the energy consumption of the interactions, we use a particularly “cheap” language model. Future directions include event-driven narratives, expanded player and event functionalities, and potential simulation experiments in emerging social structures among NPCs within archaeogames. Overall, this empowers archaeologists to create their own video games.

**2224. MUSEOLOGICAL PRESENTATION OF MINIATURE ARCHAEOLOGICAL MATERIAL FROM THE SITE VUČEDOL – CORNFIELD STREIM, VUKOVAR (CROATIA)**

**Contribution format:** Poster  
**Contribution authors:** Petra Nikolic – Mirela Hutinec – Mirna Šuljug (Vucedol Culture Museum)

At the beginning of 2025, an exhibition called “Little secrets of the big depot - Male tajne velikog“; was opened in the Vučedol Culture Museum. The exhibition takes visitors through the story of miniature objects from the period of the Vučedol Culture (3000-2500 BC) found during the systematic archaeological research of the eponymous site within closed units, pits and houses, at the position of Streim Cornfield. These excavations lasted for a whole decade, from 2012 to 2021, and resultet only in a smaller number of miniature finds. Miniature models of consecrative horns, censers, and footwear are only a part of the displayed objects that served in everyday or ritual activities. Especially interesting are the ones with multiple purposes, and those whose real purpose is still not fully defined. In addition to the diverse miniature archaeological material presented to the general public for the first time in this context, the interactive exhibition captures attention with its visual concept, which allows visitors to see the museum’s storage rooms and the workspaces of the curators - archaeologists. Depots, due to their primary function and inaccessibility to visitors, often represent a true mystery. This presentation will refer to the creation and realization of the exhibition concept, which in a visually attractive way presents the material that, due to its simplicity, may not be so attractive among the audience. Additionaly, it will explain in which way interaction was encouraged among everyday visitors with minimal use of additional technological solutions.

**180 IDENTITY OF PLACE AND SPACE IN HISTORICAL AND ARCHAEOLOGICAL CONTEXT**

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** material culture, identity, sites of memory, spatial relationships, interconnecting cultures, historical events  
**Session organisers:** Anna Miaczewska – Anna Obara (Maria Curie-Skłodowska University) – Clara Maria Ramos Taboada (Foundation of Research and Technology - HELLAS) – Rachael Lane (University of Sydney)

**SESSION ABSTRACT**

Pierre Nora’s (1984-1992) term lieux de mémoire – places/sites of memory – defined the artefacts recognised by specific groups/communities as pertaining to the these groups’ understanding and establishing their local history. Taking into consideration this definition created by Nora, the aim of this EAA session is to examine the concept of places and spatial relationships between archaeological objects, domestic features, large and ritual structures, etc., in order to prove their specific effect on shaping and reshaping the identities of various communities. Conversely, this theoretical perspective can also be used in this session to assess how the practical application of the concept of ‘identity’ of various societies transformed places and spaces they came in contact with. The papers presented in the sessions will address methods and tools which were used during the processes of cultural and historical changes, and how these processes marginalised and/or pushed aside the material culture typical of

other specific groups/communities, at the same time transforming the cultural, political, and social space, as well as the natural landscape of the affected areas. This session will focus on historical events (wars, conquests, invasions, attacks against indigenous inhabitants of various regions and countries vs. interactions and interdependencies between local material cultures in times of peace) and archaeological case studies which can determine that. 1) specific individual or group identities emerged as a result of the interconnectivity/clashing of different ethnic/religious/political groups and societies. 2) new places (and sites of memory) were established due to the occurrence of violent events in the past or because of various peaceful communication processes (e.g. exchange of goods). 3) different space, landscape, urban or rural areas were (re)created as a consequence of assuming new identities (notion of forced vs. voluntary acculturation and assimilation).

**CONTRIBUTION ABSTRACTS**

**285. KOUROI AT THE PTOION SANCTUARY: THE ARTISTIC IDENTITY OF BOEOTIAN COMMUNITIES IN THE ARCHAIC PERIOD**

**Contribution format:** Oral  
**Contribution authors:** Lucrezia Mastropietro (Scuola Superiore Meridionale)

“Les sculpteurs béotiens de l’époque archaïque ont bien moins de talent que de sentiment ; peu de savoir-faire, mais beaucoup de franchise ; si leurs œuvres demeurent très-éloignées de la perfection plastique, elles restent assez voisines de la nature ; ils ne savent guères ce qui peut s’apprendre, mais ils possèdent d’instinct quelques-unes des qualités qui ne s’acquièrent pas”. With these brief remarks, Holleaux, the discoverer of the Temple of Apollo Ptoios in Boeotia, summarized his assessment of the region’s archaic sculpture. In his view, the kouroi found at the site bore, more than those discovered elsewhere, the imprint of an “indigenous” art. The selection of the Ptoion sanctuary—among all possible sites—as the place of dedication for these kouroi is likely a reflection of the fact that, as early as the 7th century BCE, the community regarded it as a locus of identity. By analysing the different materials used, stylistic evolution, patterns of patronage, and the historical context and events within which this production took place, it becomes evident that the kouroi serve as direct testimony to the identity-building function of artistic languages in the sanctuary. As such, they can be interpreted as material manifestations of the individuality of Boeotian communities, for whom this sanctuary functioned as a point of reference and convergence, an expression of their collective memory. The creation of kouroi thus for the Ptoion constitutes a fundamental cultural premise of identity.

**1197. IDENTITIES AND ONOMASTICS OF ENSLAVED PERSONS IN THE CLASSICAL PERIOD: EPICHO- RIC SLAVE SYSTEMS AND ALTERNATIVE MODELS**

**Contribution format:** Oral  
**Contribution authors:** Ioannis Diamantopoulos (Foundation of Research and Technology - HELLAS)

Until recently, it was widely accepted that slaves during the classical period were bearers of stereotypical ethnic names, reflecting an ideology that differentiated citizens from slaves. Recent studies have shown that, while ethnic names were a common way to identify slaves as foreigners, they were not the only form of names used. That study revealed a more complex picture where many slaves, freedpersons, and even possible slaves shared the same names with citizens, disproving the assumption that slave names always served as a way of distinguishing them from the free population. Does the model of classical Athens apply to the rest of the Greek world? My presentation examines the existence of two distinct onomastic models in the classical period, by comparing Athens and Chios, on the one hand, with four regions of the Peloponnese on the other. The evidence suggests that while Athens and Chios share a common pattern, in which ethnic and foreign names constitute a substantial proportion of slave names, such slave names are completely absent from the Peloponnesian slave systems. The Athenian and Chian names suggest closer interactions with Asia Minor, whereas the Peloponnesian model appears more inward-looking, attesting different trends, dynamics and influences. By analyzing these differences, this paper contributes to our understanding of regional identity expression through personal names in the classical Greek world.

**908. THE IDENTITIES OF ROMAN ENSLAVED PERSONS IN RELIGIOUS INSCRIPTIONS FROM THE REGIONS OF UMBRIA AND ETRURIA (REGIONES VI AND VII)**

**Contribution format:** Oral  
**Contribution authors:** EB Rummel (University of Crete | Institute for Mediterranean Studies (IMS-FORTH))

This presentation offers an exploration of the identities of enslaved persons as expressed in religious inscriptions from Roman Umbria (Regio VI) and Etruria (Regio VII), dating from the first century BCE and first two centuries CE.A central component of community in ancient Roman society was participation in shared religious practices. The dynamic overlapping of the religious practices of the individual, family, familia, occupation and



chosen communities, city, and more general geographic region formed an intertwined and multilayered religious landscape. Partially constitutional of this landscape were religious inscriptions, dedications and vota. Through their creation, individuals and groups asserted their place in the community and contributed to its ever-evolving dimensions. The texts of such religious inscriptions produced by enslaved persons serve as vital evidence of the complex and potentially heterogeneous identities they espoused and embodied. While marginalized and rendered lesser by many metrics, they nevertheless created objects, whose texts speak to their participation in their community’s religion and their being intertwining in the varied relationships which constituted it and its members. Moreover, the creation of at least presumed permanent objects demonstrates the agency of slaves to shape their community and their place within, an agency greatly impacted by their various identities.

1241. SPACES OF SELF-REPRESENTATION AND GROUP IDENTITIES IN ROMAN THUBURSICUM NUMIDARUM

**Contribution format:** Oral  
**Contribution authors:** Clara Ramos-Taboada (Institute for Mediterranean Studies (IMS) – Foundation for Research and Technology (FORTH))

The present study focuses on the epigraphy of the ancient city Thubursicum Numidarum (modern-day Khamisa, Algeria), covering the period from 1st to 3rd century AD. The material employed is the epigraphic corpus of the city, comprising more than 800 inscriptions. This study assumes that the habit of epigraphic commemoration reflects a certain degree of Roman acculturation. However, the population comprises various groups which adopt distinct representation patterns, demonstrating deliberate behaviours. On the one hand, the pre-Roman and Numidian population take part in epigraphic commemoration more frequently than in other nearby cities and exhibit a differentiated identity due to a distinct name-giving system. Consequently, there seems to be an absence of the display of a sense of integration into the pyramid of legal statuses of Roman society. On the other hand, the servile population is present in a lesser number of inscriptions than in other nearby epigraphic corpora. This is a striking phenomenon given that this community is usually overrepresented in epigraphy. The analysis will address the question of whether their presence in the city is linked to the Roman or Numidian communities. In addition, the investigation will examine how well the subjects adopted Roman modes of representation or whether they maintained their own identity. Finally, the study will address also the hybridisation of freedmen, slaves and Numidians. It is important to consider that, a priori, these communities would be regarded as under Roman power. Therefore, the present study will use epigraphy to examine how these identities coexist in the funerary space and how they hybridise or remain separate, starting from the premise that epigraphic commemoration in this context is in itself a Roman acculturation.

1557. LANDSCAPES OF INFLUENCE: THE RELATIONSHIP BETWEEN GREEK IDEAS AND ROMAN GARDEN DESIGN

**Contribution format:** Oral  
**Contribution authors:** Rachael Lane (University of Sydney)

This paper explores the influence of the Greek world on Roman gardens and landscapes, examining how the Romans adapted Greek ideas and material features in their own garden designs. I will investigate shifts in style, fashion, and philosophical outlook that contributed to a more favourable Roman view of Greek culture, leading to its assimilation into Roman garden aesthetics. Through the lens of philosophy, architecture, art, and aesthetics, I will identify both the elements that were embraced and those that were discarded, considering the reasons behind these choices and their role in redefining Roman material culture. Additionally, I will explore historical, practical, and technological factors—such as advances in water and waste management—that facilitated this integration. The Romans took many of these ideas, built on them and incorporate. them into their gardens, villas, and public spaces. Finally, I will examine the botanical influences from Greece, highlighting the plants and horticultural practices introduced into Roman gardens and how they reflect broader cultural exchanges.

1010. MEMORY, IDENTITY, AND THE TRANSFORMATION OF SACRED SPACES: THE ARCHAEOLOGICAL SITE OF LAS CALAVERAS (RENEDO DE ESGUEVA, VALLADOLID, SPAIN)

**Contribution format:** Oral  
**Contribution authors:** Santiago Sánchez De La Parra-Pérez (Universidad de Santiago de Compostela | Institut Ausonius - Université Bordeaux-Montaigne) – Sonia Díaz-Navarro (Universidad de Burgos)

The archaeological site of Las Calaveras (Renedo de Esgueva, Valladolid) spans nearly 15 hectares and has been continuously occupied over several centuries. Nearby, Iron Age ritual deposits and a Roman peristyle villa, likely dating to the Early Imperial period, indicate long-standing ritual and domestic activities in the area. Since 2024, excavations have focused on a monumental complex consisting of two significant structures: a double-apsed

basilica and a tetraconch mausoleum. The mausoleum, originally constructed in the 4th–5th centuries AD, was likely part of an individual or family funerary complex. In later phases, the site underwent a transformation, with the mausoleum repurposed as a necropolis during the Visigothic period. The clear space sacralisation in relation to the nearby basilica underscores the significance of this site in shaping collective memory and identity. The reuse of construction materials from the now-decommissioned mausoleum for Visigothic burials further highlights the complex interplay between continuity and change in the perception of sacred spaces. By the 6th century AD, the mausoleum had been completely dismantled, yet its influence persisted in the evolving cultural and religious landscape. This paper explores the transformation of the Las Calaveras site as a lieux de mémoire, examining how shifting religious and social identities influenced the use and reinterpretation of space over time. The study contributes to broader discussions on the role of material culture in the construction of memory and identity, particularly in transitional periods from Antiquity to the Early Middle Ages.

1788. NOMADIC PLACE IDENTITY AS REVEALED BY THE THOUSAND YEARS OF THE KEGEN VALLEY BURIAL MONUMENTS

**Contribution format:** Oral  
**Contribution authors:** Vera Uhrin-Majerik (National Institute of Archaeology, Hungarian National Museum Public Collection Centre) – Gabor Viragos (Independent) – Nabira Torezhanova – Olga Myakisheva (Central State Museum of the Republic of Kazakhstan)

In 2024, the Central State Museum of the Republic of Kazakhstan (Almaty) launched a collaborative three-year research project with the Hungarian National Museum investigating the archaeological and ethnographic monuments of the Kegen Valley. This interdisciplinary study examines how geographical space influenced community identities through millennia, focusing on the spatial relationships between settlements and burial complexes. The project, entitled “Archaeological and ethnographic monuments of the Kegen Valley: topography, cultural and chronological aspect and museification,” extends beyond traditional site excavation to analyze the complex spatial organization of burial monuments. Of particular interest is the systematic arrangement of burial mounds (kurgans) that demonstrate continuous spatial patterning from the Bronze Age through the Medieval period, despite significant demographic changes among the nomadic populations. Our preliminary findings reveal that successive nomadic groups maintained established spatial organizations in their burial practices, suggesting a strong relationship between place identity and cultural continuity. The linear arrangement of kurgans, indicates deliberate adherence to existing spatial patterns despite cultural transitions. This phenomenon raises important questions about the transmission of spatial knowledge and the role of landscape in shaping group identities among nomadic societies. This presentation will discuss initial results from the 2024 field season, examining how various nomadic groups interpreted and maintained spatial traditions while adapting them to their own cultural practices, demonstrating the complex relationship between place, identity, and cultural continuity in a Central Asian archaeological context.

2154. MIGRATION, IDENTITY, AND LANDSCAPE TRANSFORMATION OF THE CROATIAN MILITARY FRONTIER

**Contribution format:** Oral  
**Contribution authors:** Nikolina Antonic (Charles University, Faculty of Arts, Prague)

Beginning in the second half of the 14th century, the Ottoman Empire’s expansion into Europe triggered large-scale migrations from the Balkans and southeastern Europe to the north and west, permanently reshaping the region’s ethnic composition. These migrating groups carried with them distinct cultural, religious, and burial traditions, yet their ability to preserve these practices varied depending on the political, economic, and environmental conditions of their new homelands. This paper focuses on the Croatian Military Frontier, particularly the Banal Frontier. Initially established as a defensive buffer against the Ottomans, the Military Frontier gradually transformed into a distinctive socio-political and cultural entity within the Habsburg Monarchy and Europe. It was inhabited by soldier-peasants, known as Grenzers (“krajšnici”), whose military service became one of the defining elements of their collective identity. However, the Grenzers originated from diverse regions of Croatia, Serbia, and Bosnia and beyond, bringing with them various cultural and religious traditions. This convergence of influences led to a complex identity formation, shaped by both integration and conflict, while simultaneously reshaping the landscapes of their new homeland. This paper examines the multifaceted factors that influenced the evolution of these frontier societies, with a particular focus on the establishment of religious structures and cemeteries. It explores how these dynamics redefined both the people and the spaces they inhabited, ultimately shaping new identities within the changing frontier landscape.



513. EXAMING THE SLAVIC IDENTITY IN THE ANNALS BY JAN DŁUGOSZ

**Contribution format:** Oral  
**Contribution authors:** Anna Obara (Maria Curie-Skłodowska University, Lublin)

Jan Długosz (1415-1480) is one of the most important European chroniclers of the 15th century. His monumental work, the twelve-volume Annals or Chronicles of the Famous Kingdom of Poland (Annales seu cronicae incliti Regni Poloniae), remains a phenomenal source for the knowledge of the medieval history of Poland and its neighbours. At the same time, Długosz - a well-educated person, an astute observer of reality and a representative of the Polish intellectual, religious and political elites - possessed the right competence to formulate opinions on issues going beyond a simple reconstruction of historical events. One such issue was that of the Slavic identity. In my presentation, I will try to provide an answer to the question of how the Polish chronicler understood the Slavic identity. I will focus on issues such as the origin of the Slavs, their language, and the territorial extent of their presence. In order to understand the meaning of the Slavic identity in Długosz’s work, it will also be necessary to analyse the circumstances in which a given reference was cited.

479. POLITICAL PETROGLYPHS — THE HISTORICAL MARITIME ROCK ART OF SKAGERRAK AND THE BALTIC SEA

**Contribution format:** Oral  
**Contribution authors:** Anton Larsson (Uppdrag arkeologi)

Between the mid-15th century and the early 19th century CE, seafarers navigating the Northern European maritime contact zones of the Skagerrak Strait and the Baltic Sea left behind a remarkable corpus of historical rock art. Along the insular anchorages and natural harbors that served as vital nodes in regional communication and shipping networks, they carved names, dates, coats of arms, and a variety of pictorial imagery. These petroglyphs held significant meaning, ranging from late medieval Danish aristocrats asserting their status and lineage through heraldry, to common soldiers and sailors of the Finnish War (1808–1809 CE) using the stone surfaces to express wartime patriotism and camaraderie. Social structures, identities and ideas were recreated and reaffirmed through the process of carving messages and symbols into the rock. Many key sites were reused over centuries, and the presence of these petroglyphs would influence how the locations were perceived by local communities. This paper provides an overview of the historical maritime rock art found in the Bohuslän Archipelago, the Stockholm Archipelago, and the Gulf of Finland, highlighting the untapped research potential of this underexplored field of cultural heritage. Additionally, it introduces a case study of two newly surveyed sites on the island of Tyvö, Sweden, offering fresh insights into this long-lasting practice of place-making.

1859. OLĘDER SETTLEMENT IN THE AREA OF MODERN ŁÓDŹ

**Contribution format:** Poster  
**Contribution authors:** Anna Olczyk (University of Lodz, Doctoral School of Humanities)

The presentation will focus on the material traces of Olęder settlers in Łódź, their current condition and the circumstances that led to it. In particular, I will focus on the specific expressions of the Olęder identity that have emerged as a result of the interactions and confrontations of various ethnic and religious groups over a period of at least three centuries. The beginnings of Olęder settlement within the present city limits date back to the end of the 18th century. Unlike the first wave of this settlement in Poland (16th century), a community of mixed origin settled in the suburbs of Łódź. Most of the settlers came from the German cultural area. Among them were also descendants of settlers from earlier waves of settlement. The settlements they founded were intended for the economic development of areas that had not been cultivated before, usually due to difficulties in accessing them, such as forests or wetlands. The settlements, which had existed since the end of the 18th century, became urbanised and the cultural landscape of most of them underwent significant changes. The expulsions and population exchanges had a significant impact on the condition of the remains of the Olęder settlement, which were gradually destroyed by both natural and anthropogenic causes. The material traces of the settlement, which are - or rather could be - the “last witnesses” of the functioning of the Olęder communities around Łódź have almost completely disappeared from the social memory. At present, the urban areas that are the subject of my research have been almost completely transformed as a result of the adoption of new identities, in which there are scarcely any traces of the former presence of such an important and unique component of the past: the Olęders.

181 HUMAN REMAINS IN MUSEUMS: BRIDGING NARRATIVES AMONG ETHICS, SCIENCE, HERITAGE, AND COMMUNITY ENGAGEMENT

**Session theme:** 6. Intertwining archaeology, heritage, and museums  
**Session format:** Regular session  
**Session keywords:** university collections, museology, anthropology, bioarchaeology, ethics, human remains  
**Session organisers:** Giovanni Magno (Morgagni Museum of Human Anatomy - University Museums Centre CAM, University of Padua) – Alice Cusan (School of Social Science- University of Aberdeen) – Dario Piombino-Mascali (Department of Anatomy, Histology and Anthropology, Faculty of Medicine, Vilnius University)

SESSION ABSTRACT

Today, museums preserve collections of human remains interpreted variously among anthropology, archaeology, and medicine. These categorisations contribute to distinct and sometimes conflicting interpretations and narratives, embedded in gray legislations and guidelines. Along with being invaluable for research in archaeology, anthropology, and the history of medicine, human remains are multilayered, simultaneously belonging to different, opposing, or contested narratives. Therefore, nowadays museums have an important role in bridging archaeology, heritage and science, engaging the public in both scientific and cultural knowledge. Recent debates have underlined that ethical considerations are crucial, especially regarding the consent of those whose remains are studied. However, existing laws leave many collections without adequate regulation. This lack of comprehensive guidelines risk compromising ethical integrity, highlighting the need for an expanded ethical framework to ensure respectful and responsible treatment of all human remains in museum collections, considering the evolution of conceptualizing consent of those whose remains are studied, sometimes rarely applicable for remains from archaeological sites. Such measures will support ongoing studies and honour the cultural and historical significance of these remains, contributing to our understanding of humanity. This panel aims to explore the educational and cultural roles of museums, focusing on the ethical display and interpretation of human remains and how these practices can connect past and present knowledge. Insights will help shape a comprehensive ethical framework and promote respectful treatment to all human remains in museum collections. This dialogue seeks to widen the collective understanding and appreciation of our shared heritage.

CONTRIBUTION ABSTRACTS

195. VALUING, RESEARCH AND PUBLIC ENGAGEMENT: THE MORGAGNI MUSEUM EXPERIENCE

**Contribution format:** Oral  
**Contribution authors:** Alice Cusan (School of Social Science, University of Aberdeen, Edward Wright Building, Dunbar Street) – Giovanni Magno (Morgagni Museum of Human Anatomy, University Museums Centre CAM, University of Padua)

Antonio Vallisneri (1661–1730) initiated scientific museology in Padua by collecting rare biological specimens for student education. Giovanni Battista Morgagni (1682–1771) attempted to establish the first medical museum in 1756, but it was only in the 19th century that Lodovico Brunetti (1813–1899) unified the medical-pathological collection and founded the Pathology Museum. The absence of laws on body acquisition and the lack of medical documentation historically made it difficult to determine whether specimens were donated voluntarily or collected post-mortem. Different attitudes towards death may have also encouraged spontaneous body donations. In 1933, new laws significantly limited the preservation of specimens in Italian anatomical museums, leading to a decline in medical museology. However, new legislation in 2020 now allows for the consensual donation of bodies for study, medical training, and scientific research, with updated regulations for the return of bodies. However, the museum aspect is still not considered. Given this complex history and evolving legal landscape, how can museums balance the ethical considerations of displaying human remains with the educational and cultural benefits they provide? To answer this question, we give the example of the Morgagni Museum of Human Anatomy. It is recently renovated and serves as an educational and scientific hub even for non-specialist visitors. The exhibition focuses on the scientific nature of the preparations, respecting the human body and increasing knowledge about human pathologies and ancient living conditions. Innovative educational tools such as QR codes and Augmented Reality enrich the experience, enhancing the visit scientifically and ethically. Numerous positive feedback confirms the growing public interest in these museums.

895. THE ANTHROPOLOGICAL ANTIQUE AND MEDIEVAL COLLECTION AT THE MUSEUM OF SRE. – PROBLEMS, SOLUTIONS AND EXPERIENCES

**Contribution format:** Oral  
**Contribution authors:** Nataša Miladinovic-Radmilovic – Dragana Vulović (Institute of Archaeology, Belgrade)



In 2016, at the Open-call for co-funding projects in the area of research, preservation and usage of the museum heritage of the Ministry of culture and information of the Republic of Serbia, we were given considerable funding to start the project Preparation of final documentation and provision of permanent and safe storage of osteological material from earlier anthropological research in Sirmium. Out of all the museums in Serbia, we chose, as the starting point, the Museum of Srem and the material from Sremska Mitrovica (Sirmium) and its’ immediate surroundings, not only because it is one of the most significant antique and medieval sites in our country, but also because anthropological examinations and analyses, accompanied by photos, were performed, and also published, for over 1.000 individuals. In the period between 2016 and 2025 we managed to form an anthropological collection with more than 2.000 individuals in the Museum of Srem in Sremska Mitrovica, which is important not only for the research on the population of Srem in the Antiquity and in the Middle Ages, but also for the entire territory of Serbia. We rearranged and deposited the human osteological material in adequate and permanent storage equipment, properly marked, we place the containers on high-quality steel shelves and in this manner protected the human osteological material from decay. Every single skeleton, i.e. every single deceased, had its’ own record, where it was listed: site on which the material was found, grave number and designation, the number of shelf and box, finding conditions in the field where it was found, its’ sex and individual age, body height, as well as additional notes, if there was need for them. The forming of the collection also enabled, along with safe storage, greater availability of the anthropological material for the needs of future research and presentations.

1239. PEOPLE, RELICS, SPECIMEN OR SAMPLES? MUSEALIZATION OF HUMAN REMAINS IN POLAND

**Contribution format:** Oral  
**Contribution authors:** Emilia Jastrzebska (The Royal Łazienki Museum in Warsaw) – Joanna Ślaga (Jagiellonian University Museum)

Human remains have been part of museum collections since the dawn of museums and Polish collections are no exception to this rule. They are present in various forms and shapes in museums including regional, historical, medical, ethnographic, art, and archaeological museums, with the latter being the most common ones to house such relics. Despite the considerable size of the collection and the debate ongoing in the widely understood West, the question of their legal status and ethics of their display have somehow been neglected in Poland for decades. The reason for that is partially the usual anchoring of that western debate in the post-colonial discourse, which Polish curators hesitate to become a part of. It was not until a couple years ago when the topic was first officially addressed in a report published by the National Institute of Museums and Public Collections (today National Institute for Museums) presenting the questionable legal situation and considerable moral dilemmas expressed by curators working with collections of human remains in various museum contexts. The publication of the report triggered further actions. The National Heritage Institute called to life a working group whose task was to provide official interpretation of legal regulations regarding archaeological human remains. The National Institute for Museums also continues to work on proposing solutions and guidelines for museums regarding various aspects of caring for human remains in their collections. The presentation will cover where Polish museums currently stand on the field of the complex question of musealisation of human remains - it will discuss what has been done so far and what the plans for the future are.

11. DECOLONISING DEATH: INDIGENISATION OF COMMUNITY COLLABORATION AT MUSEUMS

**Contribution format:** Oral  
**Contribution authors:** Katie Clary – Carolyn Dillian (Coastal Carolina University)

Museums and public institutions tout buzzwords like “decolonisation” and “collaborative” work regularly in their marketing and public-facing information; often there is very little action to back up this talk. This has become particularly apparent as changes to federal laws in the United States caused modifications to exhibits that are tangible and visible to visitors, and the story was picked up by journalists covering impacts at major museums. Federal law changes demanded that museums work with Native American tribes to repatriate human remains and belongings, as well as to build exhibition and public programming. This paper details the ways museums, public institutions, and archaeologists use (or do not use) decolonisation efforts in their displays, programs, and public events, especially in regards to human remains. The paper begins with a survey of human remains of subjugated people in museums, then focuses on how that past impacts museums still today. It also explains how the Native American Graves Protection and Repatriation Act and other federal legislation discriminates against non-federally recognized indigenous communities in the United States. The chapter includes a case study on the Waccamaw Indian People (WIP) of South Carolina to demonstrate these issues. . The authors argue that though many institutions and practitioners like to use these popular words in grant applications and on public-facing texts, it is of paramount importance that professionals actually do that work ethically and thoughtfully, especially when the work considers death practices and human remains. Though this paper is not specifically European in scope, the European coloniser settlements of the United States still impact practices today, and indigenous and other subjugated communities exist globally. This paper focuses on these issues through the lens of Native

American groups in museums both in the United States, and in Europe.

509. RETHINKING ETHICAL RESPONSIBILITIES: CHANGING ATTITUDES TO THE STEWARDSHIP OF HUMAN REMAINS IN MUSEUM COLLECTIONS

**Contribution format:** Oral  
**Contribution authors:** Hana Lukesova – Camilla Nordby (University Museum of Bergen)

In 1828, Bergens Museum acquired an Egyptian wooden coffin containing a mummified woman, Teshemmin, reflecting the intense European fascination with Egyptian heritage during the early 19th century. Nearly two centuries later, a CT scan of her body has reignited critical discussions about the ethical management of human remains in museum collections. This presentation examines the challenges of handling, conserving, and exhibiting an ensemble consisting of Teshemmin’s mummified body, her painted coffin and associated textiles. Teshemmin, a priest’s daughter from the late Ptolemaic or early Roman period, was originally laid to rest with textiles, including a painted shroud bearing her portrait. However, only fragments remain, and damage to her face suggests a face mask was forcefully removed. When her remains were lifted for transport to a hospital for examination, a remarkable painted depiction of Osiris was discovered on the coffin’s bottom. To preserve this artwork, a pivotal decision was made: Teshemmin’s mummified body would not be returned to the coffin. This outcome raises profound ethical dilemmas. Does prioritising preservation of material culture justify separating human remains from their original resting place? Should Teshemmin receive a new coffin, and if so, what criteria should guide its design—historical accuracy, conservation priorities, or broader ethical considerations? This presentation explores how evolving museum practices must navigate the intersections of scientific investigation, conservation, and respect for the dead. By interrogating these ethical dimensions of Teshemmin’s case, we highlight broader implications for the stewardship of human remains in museum collections worldwide.

1619. SHIFTING THE NARRATIVE: WARNING AGAINST OR PREPARING TO ENCOUNTER THE HUMAN REMAINS IN MUSEUMS?

**Contribution format:** Oral  
**Contribution authors:** Nicole Crescenzi (IMT School for Advanced Studies Lucca)

The presence of human remains in museum collections and exhibitions is certainly not a novelty, and in the professional community, the debate related to this topic is a long-standing one. In their role as educators, museums found themselves faced with ethical questions that present no easy answer, trying to balance the need to spread knowledge while also respecting past lives. According to most professionals, visitors have no problem with the display of human remains; they want to see them when they visit museums, and it seems to be one of the reasons to go – even though most museums do not seem to engage directly with the public, they also very rarely receive complains about human remains on display. Still, as a reaction to the existing debate, some museums feel the need to ease the experience for the visitors without forcing them to see the human remains, using, among other devices, warning signs, which are becoming increasingly common and leave the choice of seeing the human remains to the visitors themselves. Starting from the data collected in an online survey, underlining that the public does not feel the need to be protected, in this paper, we would like to offer a different option: preparing the visitors for what they are about to see does not necessarily mean to warn them – especially if we think of the definition of warning, i.e., something that makes you understand there is a possible danger or problem. Human remains are not a problem and surely not a danger. Through two Italian case studies, we will underline the importance of shifting this narrative, which could result in respecting the deceased and making them the center of the debate while at the same time starting an engaged conversation between different stakeholders.

1406. (NOT SO) ETERNAL REST: ETHICAL CONSIDERATIONS IN THE CURATION OF HUMAN REMAINS FROM ARCHAEOLOGICAL CONTEXTS

**Contribution format:** Poster  
**Contribution authors:** Anne Malcherek (Laboratory of Biological Anthropology and Human Osteology–LABOH, CRIA, FCSH, NOVA University Lisbon | In2PAST–Associate Laboratory for Research & Innovation in Heritage, Arts, Sustainability & Territory | Direção Municipal de Cultura e Património da Câmara Municipal do Porto) – Zélia Rodrigues (Laboratory of Biological Anthropology and Human Osteology–LABOH, CRIA, FCSH, NOVA University Lisbon | In2PAST–Associate Laboratory for Research & Innovation in Heritage, Arts, Sustainability & Territory | Arqueologia e Património Lda.) – Manuela Ribeiro (Direção Municipal de Cultura e Património da Câmara Municipal do Porto) – Paula Mota Santos (Universidade Fernando Pessoa: Porto | CAPP ISCSP, Universidade de Lisboa) – Francisca Alves Cardoso (Laboratory of Biological Anthropology and Human Osteology–LABOH,



Debates about appropriate treatment of human remains held by museums and universities have proliferated in recent decades. Legacy anatomical collections, and collections connected to colonial contexts have rightfully been scrutinized. Human remains also frequently emerge during archaeological excavations, conducted for scientific research or required by construction regulations, continually generating new collection. to be curated by museums and other research and public institutions. However, ethics surrounding the care of archeological remains are less often explored. These ethical obligations include: heritage stewardship, scientific rigour, educational goals, wishes of descendant communities, and the rights and dignity of the individuals whose remains we study. While the availability and quality of legislative frameworks and official guidance concerning archaeological human remains varies, abundant literature exists to guide heritage professionals in their care. In practice, however. these professionals often experience tensions and navigate difficult decisions surrounding best curatorial and scientific practices, limited resources, professional and community expectations, and ethical considerations. This research investigates current discourses and practices in heritage management and curation of archaeological human remains and associated data in Portugal, where relevant legislation is lacking and practices vary. This is supplemented by comparisons to other European countries, in order to review and evaluate best practice approaches. The mixed methods approach utilises ethnographic methods (semistructured interviews, participant observation) and surveys of heritage professionals and local communities. This use of quantitative and qualitative data generates a complex view of the status quo and future directions in heritage management of human remains: showing that ethical discourses and best practice differ across countries (e.g. Germany, Italy, Portugal. and institutional settings, such as museums, commercial archaeology, public and academic settings. Likewise in a pluralistic society public attitudes towards appropriate care, research and display of human remains are multifaceted and contradictory, further complicating the role and responsibility of heritage professionals.

182 INVISIBLE ECONOMIES: FOOD, FIBRES, TEXTILES, TIMBER, LEATHER, PEOPLE, AND MORE

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** food, textiles, wood, leather, archaeobotany, zooarchaeology  
**Session organisers:** Bela Dimova (University of Padua) – Mila Andonova-Katsarski (Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences)

SESSION ABSTRACT

Food, shelter, and clothing have always been essential human needs. Meeting these needs, whether by producing or acquiring them, was a primary focus for ancient societies. Agriculture and the textile industry remain significant drivers of today’s economy and the environmental disruption, which it causes. Trade with spices, perfumes, fine foods and fabrics, alcohol and psychotropic plants, timber, livestock and even enslaved people has also been highly lucrative throughout history. Yet, the study of these central aspects of the economy is a challenge, because organic materials often do not survive. It is especially difficult to estimate the scale of economic activity and its social and environmental impact. Archaeologists now have a large toolkit for retrieving information about these invisible economies, ranging from proteomics and isotope analysis to new conceptual approaches to material culture and written sources. We invite papers that examine the production, exchange, and consumption of ‘invisible’ organic goods and materials. We are especially interested in contributions, which consider how the production, consumption, and exchange of organic materials was part of social shifts and affected the relations between society and the environment. How did various craft, agricultural, or other extraction practices transform the landscape? How did people adapt their economic activities to environmental changes? How were these adaptations related to social changes?

CONTRIBUTION ABSTRACTS

1629. DENDROLANDSCAPES PROJECT: MAKING NEOLITHIC WOOD FUEL ECONOMIES VISIBLE THROUGH DENDRO-ANTHRACOLOGICAL ANALYSES

**Contribution format:** Oral  
**Contribution authors:** Llorenç Picornell-Gelabert – Sabrina Bianco (Universitat de les Illes Balears) – Alexa Dufraisse (UMR 7209 - AASPE-CNRS/Muséum National d’Histoire Naturelle) – Oliver Nelle (Landesamt für Denkmalpflege Baden-Württemberg) – Ethel Allué (Institut Català de Paleoeologia Humana i Evolució Social - Universitat Rovira i Virgili)

In this presentation we will introduce the DENDROLANDSCAPES project, with which we intend to contribute to the development of an archaeological approach to forests resources management. Our analysis focuses on the interrogation of non-food forest resources management by Neolithic communities in north and northeastern Iberia, with which we develop a fuel-centered analysis of people-forests interaction. The use of woody biomass as fuel has been one of the most enduring arenas of socio-environmental interaction since the control of fire in the deep prehistory. However, the interrogation of fuel-related practices is often brushed aside from archaeological narratives or approached as a routine practice disconnected from economic complexities, social practices, and cultural developments. This can be shocking considering that, unlike other plant uses, the recurrent burning of wood as fuel generates archaeobotanical macroremains, archaeological charcoal fragments, that have good prospective of preservation, sampling, and analysis (anthracological assemblages). Therefore, we are studying archaeological charcoal assemblages from Neolithic sites with the aim to analyze how forests resources were managed to obtain a critical natural resource (fuel); and how this fuel management was integrated in the complex agro-sylvo-pastoral Neolithic economies. We apply dendrological measurements and techniques (e.g., diameter estimation, ring width) to archaeological charcoal fragments and use current dendrochronological reference datasets to identify how fuel was obtained through complex management practices (e.g., branches gathering, trees felling and use of trunks, coppicing/pollarding). We perform this dendro-anthracological approach in archaeological sites that register both human habitation contexts and herds stabling (e.g., fumier sequences) with the aim to understand the integration of fuel management with other economic practices (herds feeding, agricultural land openings, pastures, etc.). With such an approach we intend to understand the role of “plant invisible economies” in the context of the complexity of Neolithic socio-environmental systems.

1972. FOREST MANAGEMENT AT EARLY NEOLITHIC SETTLEMENTS IN MARGINAL AREAS (DOBŘEŇ SITE – A CASE STUDY)

**Contribution format:** Oral  
**Contribution authors:** Markéta Šmolková – Daniel Pilař (Institute of Archaeology of the Czech Academy of Sciences, Prague)

The problematics of forest management in the context of Neolithic populations based on anthracological material has not been addressed to a significant extent so far. We dispose of numerically richer charcoal collections within the Czech Republic so far only from a few sites, which does not allow for a broader comparative analysis in terms of species selection and the landscape context. The fuel strategies of Neolithic settlements located in peripheral areas have also not been much addressed. One such settlement is the Dobřeň site in Central Bohemia (Czech Republic), which belonged to Linear Pottery culture (5500 - 4300 BC). The site’s location represents a relative exception in the context of most Neolithic settlements, both in terms of its higher altitude profile and colder climatic conditions. The site revealed, in addition to several longhouses, a large number of settlement pits with rich palaeobotanical material. The analysis of anthracological material from this settlement contributes to the issue of landscape management of marginal areas in early Neolithic communities and it raises questions regarding: 1) fuel strategies, species selection and specialization in the management of wood resources, 2) possible differences in forest use at neolithic settlements inside and outside commonly preferred areas and, 3) the problematics of potential forest grazing. The paper aims to present a rich anthracological assemblage from an Early Neolithic settlement in Central Bohemia, located in an unusually marginalized area, and also to contribute to the debate on the variability of forest management in Neolithic communities in general.

1320. INVISIBLE WOOD AND LABOR: THE HIDDEN SIDE OF THE MONUMENTALITY OF MEGA- SITES OF THE COPPER AGE

**Contribution format:** Oral  
**Contribution authors:** Mykhailo Videiko (Kyiv Metropolitan Borys Grinchenko University)

Wood and clay were the main materials in the construction of mega- sites of the Trypillia Culture between 4200-3600 BC. The remains of the different houses represented by burnt clay provide information about the methods and volumes of its use. Imprints of wooden constructions have been perfectly preserved on this clay. Their study makes it possible to assess the quality of wood, methods of its processing, and also to approximately calculate the scale of use. Ordinary houses were 10-15 m long and 4-5 m wide and required dozens of trees. Structures of various profiles were used. Hundreds of trees were spent on more monumental structures. They were used to make pillars, beams, floors, roof structures. Fortifications around mega-sites required many thousands of trees. Even rough estimates of labor costs for procurement, transportation, and construction indicate a significant scale of labor activity. Such large-scale projects required long-term labor of hundreds of people. The labor resources of mega-sites numbered thousands of people and they could afford such projects. Evidence of this is the mega-structure in the settlement of Nebelivka, as well as the fortifications around this settlement and Maidanetsky. One of the consequences of the implementation of the projects was the destruction of forests around dozens and even hundreds of hectares. A large amount of wood was needed to maintain everyday life, cooking, and heating. The



costs of firing ceramic dishes were significant. Thus, mega-sites could not but become a problem for the environment. One of its solutions was their periodic relocation to a new location. The era of mega--sites of Trypillya Culture continued more than 600 years. This indicates the successful creation of social mechanisms and organization necessary for the implementation of large-scale projects and supporting the livelihoods of the population in such conditions.

2285. DOMESTIC ACTIVITIES AT THE ARGARIC SETTLEMENT OF CABECICO REDONDO DE LA MUELA (SOUTHEASTERN IBERIA) THROUGH PHYTOLITH AND CALCITIC MICROFOSSIL EVIDENCE

**Contribution format:** Oral  
**Contribution authors:** Maria Victoria Garcia Martinez (University of Granada) – Alberto Lopez Lopez (University of Murcia) – Marta Portillo Ramirez (Institución Mila y Fontanals-CSIC) – Francisco Contreras Cortes (University of Granada) – Benjamin Cutillas Victoria (Complutense University of Madrid)

The site of Cabecico Redondo de la Muela (Alhama de Murcia, Murcia), located in the southeast of the Iberian Peninsula, belongs to the Argaric culture (2200–1550 BC). It is a small settlement (<0.1 ha) on an elevated hill on the northern bank of the Guadalentín River corridor with contexts primarily associated with domestic and productive activities. Sediment samples for microfossil analyses at the settlement have been collected from five excavation sectors and two profiles, together with a selection of recovered grinding stone tools. The main aim of the current study is to present the first results obtained from integrated microfossil analyses, including phytoliths and calcitic plant and faecal microremains from the site. The phytolith assemblages were dominated by short cells produced by grasses from the Pooideae subfamily, including cereals such as wheat (*Triticum* sp.) and barley (*Hordeum* sp.), but also forms associated with the Panicoideae subfamily, therefore related to wild grasses and weed. Elongated dendritic phytoliths and epidermal appendages, which are often considered fragile morphologies, were also identified. Additionally, multicellular phytoliths, which are susceptible to mechanical degradation through dehusking and grinding, pointed to cereal processing at the site. Notably, the presence of spheroid echinate phytoliths, characteristic of the Arecaceae family (palms), was detected, likely belonging to the specie *Chamaerops humilis*, native to the Mediterranean region. Although invisible in the macroscopic archaeobotanical record, these vegetable resources were commonly used as a fiber resource for basketry or matting, among other uses. Furthermore, calcitic wood pseudomorphs similar to those produced by the oak (*Quercus* sp.) were also identified, suggesting its use as fuel. In conclusion, the present study provides new microbotanical records for reconstructing plant use as well as opens a new line of research concerning domestic patterns and environmental interaction of the Bronze Age communities settled in the region.

1539. CROSS CULTURAL COMPARISON OF PLANT FIBER UTILIZATION IN EURASIA FROM THE NEOLITHIC TO THE IRON AGE (7000 BCE–221 BCE)

**Contribution format:** Oral  
**Contribution authors:** Yaqi Yan (University of Padua)

Plant fibers, as a core economic resource in early societies, exhibited convergent technological logic and divergent cultural expressions across Eurasia. During the Neolithic to the Iron Age (Warring States period in China), both China and Europe relied on indigenous plant species—flax (*Linum usitatissimum*) in Europe, and hemp (*Cannabis sativa*), ramie (*Boehmeria nivea*), and kudzu (*Pueraria lobata*) in China. Shared techniques such as retting, scutching, and splicing were developed, with archaeological evidence preserved in specialized environmental contexts (European peat bogs and waterlogged tombs in China). Plant fiber production was deeply embedded in socioeconomic systems: flax complemented pastoral economies in Europe, while hemp and ramie formed a dual economic system with sericulture in China, serving as cornerstones of taxation and trade. This paper will analyze the differences in the relationship between plant fibers and society in Europe and China from four aspects: economic foundation and social division of labor, technological innovation and social power, cultural symbolism and identity construction, and environmental adaptation. Plant fiber economies were not merely technological vehicles but also reflections of ecological resilience and social power dynamics. Cross-continental comparison reveals that under similar environmental constraints, human societies shaped diverse exploitation models of “intangible resources” through differentiated technological choices and cultural frameworks. This provides critical perspectives for understanding the complexity of early economies.

1353. EXPLORING THE TEXTILE REMAINS FROM THE ROMAN SHIPS OF THE LAKE OF NEMI (ITALY)

**Contribution format:** Oral  
**Contribution authors:** Francesca Coletti (Department of Science of Antiquity, Sapienza University of Rome | Research Centre of Archaeology and Archaeometry of Ancient Textile, Sapienza University of Rome) – Margarita Gleba (Department of Cultural Heritage, Padua

University) – Ilaria Serafini – Alessandro Ciccola (Department of Environmental Biology, Sapienza University of Rome | Research Centre of Archaeology and Archaeometry of Ancient Textile, Sapienza University of Rome) – Adele Bosi (Institute for Complex Systems, National Research Council (ISC-CNR), Rome) – Danela De Angelis (Direzione Regionale Musei Lazio, Ministero della Cultura. Museum of The Roman Ships of Nemi (Rome))

The survival of archaeological textiles in the Italic peninsula is generally very limited. Everyday life and utilitarian textiles from settlements or urban contexts are rare compared to burials, where textiles are primarily preserved in mineralised form in contact with metal objects. The textile fragments recovered from the Roman ships of the Lake of Nemi in central Italy are thus crucial for a better understanding of the Roman textile technology, consumption, and economy at the centre of the Empire. This contribution presents preliminary results of a comprehensive approach based on microscopic, spectroscopic and spectrometric techniques applied to the textiles found in the Roman ships of Nemi. The textile remains were analysed with digital and scanning electron microscopy to characterise the technical aspects and the fibres used in textile manufacture. FTIR and proteomic techniques were also applied to deepen our knowledge of the type of wool and dyes identified. In particular, the data on wool quality and re-use or recycling of these textiles have been collected, establishing valuable comparisons with other Roman textile evidence that allows the identification of economic activity related to the recycling of textiles for new purposes, with specific functions. The research also explores the use of plant-based material to manufacture ropes and cords and caulking for the nautical sector.

871. FROM HARVEST TO MARKET: THE INVISIBLE ECONOMY OF INCENSE IN THE ROMAN WORLD

**Contribution format:** Oral  
**Contribution authors:** Alice Capobianco (Università di Genova | Universität zu Köln)

Incense was a valuable commodity in the Roman world, essential for religious, medical, and cosmetic practices. Despite its widespread use, the production and trade of incense remain archaeologically elusive: while resin can be preserved under favorable conditions, it is predominantly found in consumption contexts, making it difficult to trace its production and commercial infrastructure. This study aims to reconstruct the economic network of incense, focusing on its production, trade routes, and market integration within the Roman Mediterranean. The production of incense began with the harvesting of resins from trees such as *Boswellia* and *Commiphora*, primarily in the Arabian Peninsula and East Africa. Ancient sources describe increasing pressure on these resources due to growing Roman demand, leading to intensified exploitation and possible environmental consequences. After the harvest, incense was transported via well-established trade routes, including the Incense Route through Arabia and Red Sea networks, connecting the East with key Mediterranean markets. While production sites and trade routes are partially documented, the commercial distribution of incense within the Roman Empire remains largely invisible. *Tabernae thurariae*, shops specializing in incense, are attested in literary and epigraphic sources but are difficult to identify archaeologically. The absence of clear physical markers makes it challenging to recognize spaces dedicated to incense storage, processing, or sale. To bridge this gap, this study integrates literary, epigraphic, archaeological, and ethnoarchaeological evidence. Comparative studies of contemporary incense-producing regions provide valuable insights into traditional harvesting, processing, and trade practices, allowing for a better understanding of the possible organization of these activities in antiquity. By analyzing patterns of distribution and infrastructure supporting incense trade, this study seeks to define indicators for identifying these invisible economic spaces and to explore how Roman demand shaped both the economies and landscapes of incense-producing regions.

991. FOOD AND FUEL RELATED ECONOMY OF THE BIBRACTE OPPIDUM (FRANCE) – FIRST RESULTS AND AN INTRODUCTION TO THE PHD PROJECT

**Contribution format:** Poster  
**Contribution authors:** Natalia Prochackova (Constantine the Philosopher University in Nitra)

The study of economic aspects associated with procurement and management of food and fuel, the two essential commodities for human survival, is fundamental for understanding the functioning of any society. The site on Mont Beuvray in Burgundy identified as oppidum Bibracte since the 19th century and excavated almost continuously became the case study for this thesis. One of a key questions of the scientific discourse pertains to the organization of food supply for the oppidum. J. Wiethold (2011), along with many others, sees the immediate environs of Mont Beuvray unsuitable for arable farming, suggests that staple cereals and pulses were imported from surrounding lowland areas and further distant calcareous regions. The studies of fuelwood are rare and limited and did not yet address its origin. Thus, the aim of the dissertation is to use both old and new archaeobotanical data originating from various areas of Bibracte for verification of existing hypotheses regarding food and formulating new ones concerning fuel sources. The examination of archaeological finds of crops used as food and the



accompanying wild species will serve the following: 1.) define the origin of the samples in terms of crop processing (products/wastes) and geography (local/imported); 2.) reconstruct the arable practices (intensive/extensive, traditional/innovative, subsistence/surplus oriented); 3.) to reveal evidence of additional activities connected to management, consumption and discard of plant foods. The new samples for this project come from excavations of different settlement parts of the site each with different functions and excavated by different teams. Majority of new materials were collected between 2000 and 2016. To obtain statistically robust data, all available samples will be analyzed, although due to time constrains, larger volume samples are being subsampled. The poster presents the first results obtained from the study of new seed assemblage from PC2 and partly also PC14 and PC15.

**1663. INVISIBLE WEALTH: FOOD STORAGE, SOCIAL HIERARCHIES, AND CRISIS RESPONSE AT THE 10TH-CENTURY CHERVONE HILLFORT OF THE ULICHI TRIBE**

**Contribution format:** Poster  
**Contribution authors:** Stepan Stepanenko (Leibniz-Zentrum für Archäologie - Zentrum für Baltische und Skandinavische Archäologie)

In the 20th century, excavations at the Chervone hillfort of the Slavic Ulich tribe (Vinnytsia region, Ukraine) uncovered a remarkable destruction layer dating to the 10th century, marked by ash, charcoal, and an absence of human remains. Although evidently cleared of traded goods and precious metals, the site held an unexpectedly large volume of charred grain and storage pits, offering unique insights into how early Slavic communities managed agriculture and potential wealth. This poster explores the significance of these food remains, often rendered invisible through decay or continuous use, as indicators of social structures, agricultural production, and crisis management. The extensive grain pits suggest a complex network of production and storage, reflective of both community needs and social hierarchies. The decision to abandon food, while evacuating objects of higher perceived value, reveals how 10th-century Slavs ranked commodities during emergencies. Although the granaries themselves no longer survive, the excavation reports allow us to reconstruct which crops were cultivated and how they were stored, shedding light on broader patterns of wealth distribution and resilience in early medieval societies. This study contends that the site’s destruction highlights not only the vulnerabilities of agricultural wealth but also the critical role of food in shaping socio-economic dynamics. By examining the interplay between perishable subsistence resources and more traditionally esteemed items, the Chervone hillfort enhances our understanding of what was deemed ‘worthy’ of safeguarding, contributing to our understanding of resource management, social value, and the shifting perceptions of wealth during periods of crisis. Ultimately, these findings provide a crucial comparative framework for investigating how communities in early medieval Eastern Europe balanced subsistence, status, and security, shedding new light on the archaeology of intangible wealth and social memory, especially in the context of historic excavations and limited remaining archaeological resources for analysis.

**183 SILVER IN THE COPPER, BRONZE, AND EARLY IRON AGES (C. 4000–600 BCE) ACROSS EUROPE, THE MEDITERRANEAN, AND WESTERN ASIA**

**Session theme:** 1. On artefacts and beyond  
**Session format:** Session with keynote presentation  
**Session keywords:** Silver, hoard, currency  
**Session organisers:** Tzilla Eshel (—) – Lorenz Rahmstorf (Seminar für Ur- und Frühgeschichte, University of Göttingen)

**SESSION ABSTRACT**

Silver is a captivating material, valued since the Chalcolithic period for its rare, moon-like shine. Early on, it was used to produce jewellery and other decorative objects, sometimes alloyed with copper or gold. Repeatedly cast into rings and fragmented pieces (hack-silver) in the 3rd and 2nd millennia, silver likely functioned as a store of value and currency in Mesopotamia, gradually spreading to Anatolia and the Southern Levant. However, despite its appeal, silver’s appearance and applications varied significantly across Europe, the Mediterranean, and Western Asia. In some regions, silver is appreciated as jewellery in elite burials, as seen for example in the Yamnaya culture in Southeast Europe and the Pontic-Caspian steppe and the El Argar culture in Iberia. In other regions, it frequently appears not only in graves but also in hoards, such as in Mesopotamia, Anatolia, and the Southern Levant. However, there are also areas—like Central Europe from the Middle Bronze Age until the Latène period—where silver is notably scarce. This raises important questions: What accounts for these regional differences in the occurrence and use of silver? How did silver evolve as a store of value and currency in certain areas? What were its sources, and did the regional distribution of natural deposits shape its role? This session will explore these questions from multiple perspectives, including chronology, distribution, composition, function,

and origin. By examining silver across different regions and contexts, we aim to uncover the factors behind its varied roles and evolving significance throughout early Western Eurasian history.

**CONTRIBUTION ABSTRACTS**

**554. THE CONNECTED WORLD OF THE 4TH MILLENNIUM BC: QUESTIONS CONCERNING SILVER**

**Contribution format:** Oral  
**Contribution authors:** Susan Sherratt (University of Sheffield)

Some of the attractions of silver are obvious, but what is particularly intriguing is the way in which it became and has remained deeply embedded in the economies and cultures of the Old World (and subsequently a wider, global world) during the last six millennia. Although we can see extremely sporadic use of probably native silver in the western Old World as early as the 6th millennium BC, silver does not make a determined appearance until the 4th millennium. In the earlier part of this millennium there is evidence of the use of silve. in Iran, Mesopotamia, south-east Anatolia and the north Caucasus, and by the end of the millennium this can also be seen in the Levant, Egypt, the Pontic region, the Balkans and the Aegean. During the course of the millennium there is evidence of its cupellation from silver-rich lead ores in Iran, Central Asia, Mesopotamia, south-east Anatolia and the Aegean, and it is assumed (though cannot be proven) that most, if not all, of the silver deployed in these and surrounding areas was obtained by the process of cupellation. Opinions differ as to whether or not this process was discovered independently in a number of different regions, and I shall try to navigate through some of the arguments and uncertainties surrounding such disparate views.

**723. SILVER IN THE 4TH AND 3RD MILLENNIUM BCE: MAJOR TRENDS IN ITS USE IN EUROPE, THE MEDITERRANEAN AND WESTERN ASIA**

**Contribution format:** Oral  
**Contribution authors:** Lorenz Rahmstorf (Seminar für Ur- und Frühgeschichte, Georg-August-Universität Göttingen)

The early history of silver – in contrast to that of gold – never received much scholarly and popular interest. Yet, silver is a culturally fascinating material: it is strongly related to early economic history, trade and to the development of concepts of material value. The fundamental significance of silver during the Early Metal Ages (Late Copper and Early Bronze Age) has not been fully understood so far, especially in a wide geographical perspective. During the fourth millennium BCE silver appears in various regions of Western Eurasia mostly as rings/spirals, in a few cases also as vessels and weapons. Apparently, it was its shininess which was appreciated, while its softness made it rather impractical for tools. Weights and scales were invented shortly before 3000 BCE, making it possible to accurately measure amorphous metal. From the 3rd millennium BCE fragmented silver objects – hacksilver – were weighed out in Mesopotamia and neighbouring regions and took on the function of money as a medium of exchange, a unit of account and a store of value. First results of a quantitative analyses of nearly 500 sites from the 4th and 3rd millennium BCE with silver objects from Europe, the Mediterranean and Western Asia will be presented. In which numbers and in which kind of sites (settlements, graves, hoards etc.) were silver objects found during this period? What functions did they fulfil? What value did they have in the respective societies? Such questions will be shortly discussed in the presentation.

**173. “KESEPH”: THE USE OF SILVER-MONEY IN THE SOUTHERN LEVANT ~2000–600 BC**

**Contribution format:** Oral  
**Contribution authors:** Tzilla Eshel (—)

Silver gradually emerged as a preferred medium of exchange, beginning with its introduction in Mesopotamia and Syria in the Early Bronze Age, mid-3rd millennium BC. The Southern Levant saw the first silver-currency hoards during the final stages of the Middle Bronze Age (~1650/1600–1600/1550 BC), predating other regions. Although silver was temporarily replaced by gold in the Late Bronze Age, it re-emerged as the dominant form of money by the Late Bronze Age IIB, ~1300 BC, a status it retained until the end of the Iron Age (~600 BCE), despite occasional shortages. The distribution and context of silver hoards suggest evolving socio-economic patterns, where silver was initially restricted to elite transactions but later became more widely used in both domestic and public spheres. While silver became the leading form of money in the Southern Levant, other regions used different metals, such as gold, copper and bronze, at various times. The adoption of silver in the Levant likely reflects broader political and economic ties with Mesopotamia, Syria and Anatolia.



2533. LAVRION METALS DATABASE: A KEY TO DECIPHER ANCIENT SILVER PRODUCTION IN SOUTHEAST ATTICA

**Contribution format:** Oral  
**Contribution authors:** Markos Vaxevanopoulos (University of Thessaly) – Andreas Kapetanios (Ionian University)

Lavrion in Southeast Attica constitutes the most extended ancient silver mining district in Greece. Silver production in the area can be traced back to the late 4th millennium BC, as substantiated by archaeological evidence. The Lavrion Metals Database (LaMDa Project) is an ongoing project that aims to contribute to the study of ancient metallurgy by providing an essential tool for understanding the chaîne opératoire of metal production in Attica. It entails the development of a database for the detailed recording of Lavrion mines, metallurgical areas and metallic objects bearing the Lavrion lead isotopic signature. The database is being populated with available published and archival data on the ancient mines and metallurgical workshops of Lavrion. In parallel, it is being enriched by primary survey data which has located entrances of horizontal mines and vertical mining shafts. The interior surface of the mining galleries and the shafts have been mapped using Laser Disto-X2 and LIDAR and recorded in the database. Additionally, the available data on metallic objects provenanced to Lavrion through chemical and trace element analysis have been catalogued and recorded. Each record is linked to geospatial information in a GIS platform. The database outcome shows a diachronic exploitation with several fluctuations in production through time. The mining area is more limited geographically than was thought by previous scholars. The geographical extent of the objects produced from Lavrion silver and lead implies a great mining and metallurgical centre in antiquity.

1898. THE SILVER BRACELET FROM BUZA(TRANSYLVANIA) IN EUROPEAN LATE BRONZE AGE CONTEXT

**Contribution format:** Oral  
**Contribution authors:** Mihai Wittenberger (National History Museum of Transylvania)

In this presentation we present a silver bracelet from the late Bronze Age or early Hallstatt. Silver pieces from the Bronze Age in Central and Eastern Europe are extremely rare. In Transylvania there are two small pieces from the Middle Bronze, Wietenberg Culture, which we will discuss later, and the bracelet from Buza, Cluj County. The reduced presence of silver pieces in continental Europe cannot be attributed to a lack of resources but rather to ideological constraints. The few pieces discovered up to the Late Bronze Age were discovered in graves or in sacrificial sites (Oarța de Sus, Transylvania). Discovered in Buza, Cluj County at the “Dosul Țăpieșului” point, it may have been part of a bronze deposit discovered in 1971, dated to early Hallstatt. The silver concentration is 90.784% and it weighs 55.09g. The chemical elements, besides silver, seem to indicate other origin than Transylvania. As a bracelet typology, it falls into the very numerous series of bronze bracelets. Only in the Uioara deposit (over 6000 pieces in total) are a few dozen pieces of this type of bracelet, but made from bronze. It has been assumed that these pieces are pre-monetary payment systems. The commercial links between the Aegean area and northern Europe, through Transylvania, are proven by the Mycenaean glass and amber discovered here, as well as the presence on the Uluburun ship of an axe-scepter of Carpathian origin. Is very probable that bracelet was a form of pre-monetary payment that could circulate widely in time and space and, like other discoveries, proves the interconnectedness of communities over large areas. Chemical analyses were performed with an Elva X ProSpector3 MAX portable EDXRF Spectrometer with large area SDD detector.

320. SILVER SURFACE TREATMENTS IN EARLY BRONZE AGE CENTRAL EUROPE: EVIDENCE AND EXPERIMENTAL INSIGHTS

**Contribution format:** Oral  
**Contribution authors:** Eva Schimerová (University of Hradec Králové | Universitat Autònoma de Barcelona) – Christian-Heinrich Wunderlich (Landesamt für Denkmalpflege und Archäologie Sachsen-Anhalt) – Oliver Michael – Sebastian Dieck (DeltaSigma Analytics GmbH) – Ken Massy (Ludwig-Maximilians-Universität München) – Michal Ernée (Institute of archaeology of the CAS Prague) – Jan-Heinrich Bunnefeld – Harald Meller (Landesamt für Denkmalpflege und Archäologie Sachsen-Anhalt)

Silver in the Central European Early Bronze Age is, with notable exceptions and in contrast to the preceding Bell Beaker period, an unfamiliar and overlooked metal. Although silver sources were available throughout Europe—in some cases even co-located with copper deposits—it seems to have escaped attention. Over the past 20 years, evidence has emerged suggesting that silver may have been used as a surface treatment in regions such as Bohemia and Moravia. Two noteworthy finds are the axes from the hoard of Sýčína and decorative objects from Mikulovice cemetery. Remarkably, the latter also provides evidence of silver traces present on tools made from stone and bone. Until the discovery of the hoard of axes from Kukleny, this phenomenon appeared isolated. The Kukleny hoard, revealed that the majority of these objects had silver remains on their surfaces. This prompted

further examinations, which confirmed added layers of silver. Subsequent analyses identified silver coatings on copper(alloyed) artefacts from Saxony-Anhalt and from Bavaria. Such treatment dramatically altered the colour of objects—a transformation comparable only to effects achieved by adding high amounts of tin or arsenic. Additionally, the treatment used to coat objects with silver produced high-purity silver layers, which could only have been achieved through chemical electroless plating. Our research focuses on identifying the character and elemental composition of these layers. The objective is to determine the specific methods used to achieve these coatings. Ongoing experiments explore not only the application methods but also the effects of corrosion—investigating how to differentiate between natural corrosion processes and intentional layers. This phenomenon demonstrates that silver was a highly desired material, primarily for its distinctive colour, so different from gold, bronze and copper. It highlights the Early Bronze Age as a period of experimentation with metallurgy, offering insights into technological advancements of the time.

184 GIVE ME SHELTER! PERSPECTIVES ON ARCHAEOLOGICAL SHELTERS: BALANCING CONSERVATION, VISITOR ENGAGEMENT, AND SUSTAINABILITY

**Session theme:** 6. Intertwining archaeology, heritage, and museums  
**Session format:** Discussion session  
**Session keywords:** Shelters, Visitor engagement, Public access, Conservation, Site management  
**Session organisers:** Ashley Lingle (University of York) – Jerrod Seifert (University of Oslo)

SESSION ABSTRACT

This session will explore the multifaceted roles of permanent archaeological shelters - protective structures designed to safeguard sites - highlighting their capacity to influence conservation, visitor experience, and sustainable site management. As recognition of their appeal grows, heritage professionals are grappling with key debates around shelter design, management, and interpretation. The effectiveness of these shelters relies heavily on their ability to enhance visitor experiences while also addressing environmental challenges and the economic viability of heritage sites. However, the implementation of archaeological shelters is not without its controversies. Critics have pointed out challenges related to the perceived authenticity of the sites, potential disengagement of local communities, and the balance between preservation and public accessibility. The discourse surrounding these issues underscores the need for heritage professionals to navigate complex socio-cultural dynamics while ensuring that conservation efforts are inclusive and responsive to the needs of diverse stakeholders. As public access to archaeological sites continues to evolve, the future of archaeological shelters is increasingly focused on enhancing visitor engagement through technological integration and sustainable practices. Ongoing dialogue and research in this area aim to redefine the roles of these structures in heritage management, emphasising the importance of adaptability and collaboration in preserving the significance of archaeological sites for future generations. This session will address the current discussions around these protective structures and their precarious nature, underscoring the importance of interdisciplinary approaches that integrate innovative technologies and community involvement. The organisers welcome talks illustrating a range of case studies demonstrating shelter successes and cautionary tales, including but not limited to.

- Community and stakeholder engagement
- Sustainable design and modifications
- Digital and environmental innovation
- Economic viability.
- Authenticity and Visitor Experience
- Broader landscape impacts

CONTRIBUTION ABSTRACTS

762. MONUMENT OVER MONUMENT? EVALUATING THE DESIGN STRATEGIES OF PROTECTIVE SHELTERS AT ARCHAEOLOGICAL SITES IN ASIA MINOR

**Contribution format:** Oral  
**Contribution authors:** Basak Kalfa – Ayca Ozmen (Cankaya University)

The design strategies of the permanent archeological shelters, ensuring the preservation, interpretation, and presentation of the archaeological findings in situ and the comfort of the excavations, necessitate the impacts of Vitruvius’ durability, functionality, and aesthetics (firmitas, utilitas, venustas) as well as ethics and ecology. Ethics, associated with conservation principles, enables the archaeological site to be protected respectfully. Aesthetics defines the formal relationship of contemporary design with the archaeological site and its environment. On the other hand, the ecological impact is related to the minimum hazard of its materials to nature and



the utilization of climatic conditions. In addition, it is expected to be durable in all kinds of disasters and fulfill its function as a protective shelter. Asia Minor is exceptional regarding archaeological sites, and protective shelters have been constructed in numerous archaeological sites in this context. Critically, it can be argued that these shelters pose challenges to the authenticity and integrity of monumental-scale findings in archaeological sites. Besides, the discussion of protective shelters in archaeological contexts generally remains outside of the architectural design and conservation discourse. Therefore, this study aims to investigate and compare the durable, functional, aesthetic, ethical, and ecological impacts of the design strategies of archaeological shelters in Asia Minor through the lenses of architecture and conservation disciplines. These shelters may occasionally compete with the ruin they protect concerning their monumentality. In light of these outputs, through cross-case comparison and literature review used as methodology, the paper will discuss which criteria are mostly realized and what should be normative.

**1868. CHANGING CONTEXTS, MOTIVATIONS, AND APPROACHES IN SHELTER DESIGN OVER THE LAST CENTURY: A RETROSPECTIVE FROM PERGAMON**

**Contribution format:** Oral  
**Contribution authors:** Seçil Tezer Altay (DAI Istanbul)

The ancient city of Pergamon (Izmir, Türkiye) has been subject to archaeological excavations for more than 140 years and comprises a rich history of the ever-changing practices of archaeology and conservation. No doubt, protective shelters also played a significant role in the preservation and presentation of the remains. But how far have they achieved what they were originally intended to do, and what other unforeseen problems have arisen? This paper aims to bring together examples from different time periods: 1900s, 1970s and 2000s. The case studies will be briefly described within their archaeological context and the debates of the period. It will also examine the design approaches adopted in response to the main driving factors for a shelter. The tense balance between the aspects of conservation, presentation, authenticity and economic viability are worth a detailed observation on these examples. In conclusion, the paper aims to discuss the multiple roles of shelters in the context of the changing needs of the times.

**1628. MORE DATA, MORE PROBLEMS - DIFFICULTIES IN RECTIFYING DISCRETE DATASETS FOR THE MANAGEMENT OF SHELTERED ARCHAEOLOGICAL SITES**

**Contribution format:** Oral  
**Contribution authors:** Jerrod Seifert (University of Oslo) – Ashley Lingle (University of York)

The ability of archaeological shelters to successfully protect their archaeological assets hinges on mitigating environments that are deleterious to their survival. If these environments are not adequately characterised, they cannot be properly combatted. Mitigation strategies derived from improperly defined environments can be ineffective or can exacerbate site deterioration. Conservation site managers are keenly aware of this, and so to avoid such scenarios they incorporate rigorous environmental monitoring plans to capture as much data as possible. These datasets may include relative humidity and temperature fluctuations, solar radiation, wind speed, precipitation, soil moisture content, and CO2 monitoring. These can then theoretically be combined with 3D and photogrammetry site scans, geographical location, site composition, and soil pedology and composition to build or augment a shelter that will successfully abate any detrimental action that might impact site statics. And therein lies the dilemma facing conservation site managers: how can all of this data possibly be managed? How can these disparate datasets be aligned to produce meaningful understandings of the impact each has upon the other? How much data is necessary without succumbing to entropy? This paper discusses the difficulties inherent in rectifying such datasets and incorporating their findings into effective conservation management plans of sheltered sites.

**1946. GLASS FOR THE PAST THE PROJECT FOR THE PROTECTION OF THE TOMB OF NAKHT BY MILAN KOVAČ, SWEDEN/SLOVENIA (1986)**

**Contribution format:** Poster  
**Contribution authors:** Mateja Ravnik (Institute for the Protection of Cultural Heritage of Slovenia) – Jan Ciglencečki (University of Ljubljana, Faculty of Arts, Center for Middle Eastern Studies) – Milan Kovač (independent architect)

The Slovene Egyptology Databaseis (Baza slovenske egiptologije/BSE) is a collaborative project between the Faculty of Arts, University of Ljubljana, and the Institute for the Protection of Cultural Heritage of Slovenia, focuses on systematically collecting, archiving, cataloging, and digitizing a wide range of materials related to Slovenian contributions to the study of Ancient Egypt from the 19th century to the present. The systematic investigation, archiving, and digitization of the private archive and collections of Milan Kovač are carried out as part of this project. Among the materials of the architect Milan Kovač were also the plans for the protection of the Nakht tomb (TT52) with the patented protection system Eureka! EU 1586 (arch-in-situ), which is based on the principle

that archaeological remains, including decorations, need similar climatic conditions in which they have been preserved over thousands of years. It is therefore necessary to separate the climate in which the visitors are and the climate in which the decorations are preserved. The Theban Tomb TT52 is located in Sheikh Abd el-Qurna, part of the Theban Necropolis, on the west bank of the Nile, opposite to Luxor. It is the burial place of Nakht, an ancient Egyptian official who held the position of a scribe and astronomer of Amun. On the poster, we will present the project of the architect Kovač, carried out in 1986, with the basic principles of protection and the measurements of humidity and temperature in the tomb, which are an important document about the preservation of cultural heritage and the management of the impacts of tourism and climate already almost 40 years ago, and show the relevance of activities that are still ongoing today to establish a balance of all these impacts for of cultural heritage preservation.

**187 INVESTIGATING CERAMIC BUILDING MATERIAL (CBM) IN DIFFERENT CONTEXTS - LIFE CYCLES OF TERRACOTTA OBJECTS**

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** Ceramic building material, tile, brick, terracotta, life cycle, object biographies  
**Session organisers:** Pirjo Hamari (University of Helsinki) – Annalize Rheeder (Independent) – Julian Bauch (German Archaeological Institute, Berlin)

**SESSION ABSTRACT**

The life cycle of ceramic building material (CBM) can be described as a series of phases during which the objects are assigned diverse functions and meanings. At different stages objects are the product of a design and production process, goods to be traded, cargo to be transported or building materials. Reuse is also a common occurrence with the change in an object’s function leading to physical and/or symbolic transformations. To investigate the wider social and economic impact of these objects it is necessary to contextualise objects within their individual life cycles. The life cycle of ceramic building materials (including bricks, tiles and decorated architectural terracottas) can leave identifying traces on the objects themselves. The reconstruction of a specific phase of even an entire biography is aided through the study of these traces, which is further aided by developments in scientific analyses and technology. The analysis of individual life cycles of this group of finds can give specific insights into different economic strategies within ancient building (industries). This session invites researchers interested in this material to join the discussion and share their latest findings and discuss new research avenues and growing collaboration. We are inviting contributions from the entire Mediterranean and European region (and beyond), spanning from the Classical to Medieval period. The session is interested in contributions that focus on different life cycle phases and the methods which can be applied to their study, e.g.:  
- Production processes and the investigation of Chaîne opératoire  
- Object biographies and style genealogie.  
- The trade and distribution of materials  
- The construction process and building techniques involving CRM  
- The investigation of wear and object function  
- Changes in form, function and design when objects are re-used or recycled  
- Destruction and deposition and the traces these leave, whether intentional or accidental

**CONTRIBUTION ABSTRACTS**

**973. FROM REPAIR TO DEPOSITION: THE LIFE CYCLE OF ARCHITECTURAL CERAMICS IN GREEK SANCTUARIES**

**Contribution format:** Oral  
**Contribution authors:** Jane Kreiser (Technical University Darmstadt)

Ceramic building materials (CBM) in ancient sanctuaries underwent complex life cycles, from their production and use to processes of maintenance, repair, reuse, and eventual deposition. While the study of CBM often focuses on production techniques and stylistic developments, their later transformations—such as repair, removal, or recycling—remain an underexplored aspect of their material biography. This paper investigates these processes with a focus on Greek sanctuaries, examining how architectural ceramics were managed over time and what this reveals about economic and ritual practices in these sacred spaces. The study is centered on the extra-urban sanctuary of Spáthari in Akarnania, a relatively small rural cult site that, despite its scale, featured an unexpectedly elaborate roofing system in the Archaic period. This makes it a particularly valuable case study for analyzing the role of architectural ceramics in sanctuary maintenance, transformation, and disposal. Through the material



and contextual study of roof terracottas, the paper explores.

- The significance of high-quality roof decoration in a non-urban sanctuary setting.
- Repair and replacement strategies, including material choices and workshop connections.
- The reuse and deposition of architectural ceramics, tracing their transformation from functional elements to discarded material.
- Comparative insights from other sanctuaries, including Athens and Olympia, to contextualize these practices.

Using archaeometric methods (macroscopic analysis, XRD, pEDXRF), this study reconstructs the life cycle of architectural ceramics within the sanctuary and its broader economic and cultural implications. By examining how these materials were managed—whether through maintenance, reuse, or deposition—this paper contributes to a deeper understanding of the economic and ritual strategies underlying sanctuary architecture.

**126. LONG-TERM USAGE AND REUSE OF ROOF TILES IN MEDIEVAL CRIMEA: ARCHAEOLOGICAL AND STATISTIC EVIDENCES**

**Contribution format:** Oral

**Contribution authors:** Moisieiev Dmytro (NGO “Crimean institute of strategic studies”)

There is an opinion concerning roman- and byzantine-time roof tiles, that they were a long-term and mass secondary use building material with minimal differences in design. However, there is not enough objective archeological data about this problem. We analyzed four well-dated medieval roofs from Crimean sites to obtain objective statistical data about that. As a rule, the major part of each complex consists of products synchronous with roof construction time (“first” set). These roof tiles are characterized by the following features: presence in the whole roof; similar design and fabric – production in one workshop; the vast majority in the complex (up to 70%). The term of the usage of tiles of the “first” set is ranged from half to three centuries. A tiled roof is a complex engineering construction. It demands permanent technical support with the replacement of tiles, repair of rafters and underlying material of roof tiles. As a result, tiles that differ from the “first” set appear on the roof during repairs. “Repair” tiles can be single or make significant (16-20%) groups of identical in design and fabric products. Sometimes “repair” groups of roof tiles overtop the “first” set (it recorded once on Crimean material with 22% to 20%). This indicates significant damage of the building in the past. Serious damages and repairs of walls should be detected in such cases. “Repair” roof tiles date back to the time after construction of building or before it (from half a century to four centuries). If roof tiles are older than the “first” set, it is mean that they are secondary used. Usually the latest “repair” roof tiles are single products with chronology close to the time of the destruction of building. Therefore, the stratification of roof tiles on ancient roofs corresponds to the construction history of the complexes.

**791. CERAMIC BUILDING MATERIALS IN PUBLIC STRUCTURES: QUANTITATIVE REQUIREMENTS, PRODUCTION AND USE. CASE STUDIES FROM BYZANTINE AND OTTOMAN THESSALONICA**

**Contribution format:** Oral

**Contribution authors:** Konstantinos Raptis (Ephorate of Antiquities of Thessaloniki)

The paper presents diachronically the construction process and the building techniques involving the use of ceramic building materials in various masonry types, used in public, both secular and ecclesiastical, monumental structures from the late antiquity until the medieval and early modern period in Thessalonica, a diachronic urban center without historical gaps throughout a period that covers more than two millennia. It also examines the quantitative requirements in bricks and tiles in monuments with significant use of ceramic building materials in different periods and discusses whether the contemporaneous brickyards and tilleries that have already been excavated and documented in the periphery and the outskirts of the fortified city could cover the quantitative needs for ceramic building materials used in public, either secular or ecclesiastical, architectural projects during the periods of construction boom in the city. In this framework, several study cases from Late Antique, Byzantine and Ottoman Thessalonica will be briefly presented and discussed.

**1694. BETWEEN UTILITY AND SYMBOLISM: THE LIFE CYCLES OF ARCHITECTURAL TERRACOTTAS FROM THE VILLA METRO ANAGNINA**

**Contribution format:** Oral

**Contribution authors:** Julian Bauch (German Archaeological Institute) – Jane Kreiser (Technical University Darmstadt)

The study of ceramic building materials (CBM) in Roman architecture has traditionally focused on their functional aspects, such as production, distribution, and technical properties. However, architectural terracottas, especially decorated antefixes, often carried additional symbolic, social, and possibly sacral meanings. The contribution examines the life cycle of roof terracottas from the Villa Metro Anagnina, a Roman production and

agricultural complex in the suburban periphery of Rome, which exhibited unexpectedly high-quality decorative elements. The villa, occupied from the Republican to Imperial period, provides an excellent case study to assess how mythological antefixes functioned within non-sacral contexts. Previous studies have often assumed that richly decorated roof terracottas indicate sacred structures, yet this research questions such assumptions by considering a broader range of economic and architectural factors. Were these antefixes aesthetic and status markers within an elite productive estate, or do they suggest a cultic space within the complex. To address this, the study integrates: - New documentation techniques, including 3D scanning and color analysis, applied to selected antefixes preserved in the Antiquario Lucrezia Romana. - Macroscopic and material analyses to assess production techniques and potential workshop affiliations. - Comparative studies of CBM from contemporary suburban and rural sites to contextualize the economic and ideological role of decorated roofs. - A lifecycle perspective tracing the use, maintenance, potential reuse, and deposition of these architectural elements. By bridging technical, economic, and symbolic interpretations, this paper contributes to a broader discussion on the role of CBM beyond their primary function, integrating insights into architectural identity, economic investment, and possible religious implications within elite Roman estates.

**1983. TRASH OR TREASURE? RECYCLED ROOF TILES AND BRICKS IN ROMAN PETRA**

**Contribution format:** Oral

**Contribution authors:** Pirjo Hamari (Finnish Heritage Agency / Independent)

Among the number of other remarkable finds from the Nabataean-Roman House IV on the Ez Zantur hill in Petra, Jordan, a large quantity of brick and roof tile fragments were recovered. These came mostly from secondary deposits, having been used as recycled building material in the infrastructure of the house. Regardless of its used nature, the material provides an exceptionally valuable overview of the types of CBM in use in Petra during the late Nabataean and early Roman periods, from 1st c. BCE to 2nd C. CE. The study of these types and their possible original contexts opens up several interesting new avenues for research, such as the origin of the habit of CBM use in Petra, the genealogy of the types used, and the overall impact of CBM use in the cityscape of Petra. In my contribution I will focus on analysing the processes and signs of reuse of CBM in the area. In addition I will discuss the possibilities for further work on tile and brick typologies based on this reused material.

**2464. FIRING THE FOUNDATIONS: AN OVERVIEW OF CERAMIC BUILDING MATERIAL PRODUCTION IN CLASSICAL AND HELLENISTIC ATHENS**

**Contribution format:** Oral

**Contribution authors:** Franziska Lehmann (dArV)

The production of ceramic building materials (CBM) in Athens during the Classical to Hellenistic periods remains underexplored, despite the central role these materials played in the city’s architecture. This paper seeks to provide a preliminary overview of the broader trends in CBM production in Athens, examining how this activity may have evolved over time and its integration into the urban fabric. Drawing from both written and archaeological sources, the paper will explore key aspects of the production process, including the types of materials used, potential workshop locations, and the socio-economic context in which these materials were produced. By focusing on Athens as a case study, this paper aims to illuminate the relatively undocumented production processes of bricks, tiles, and architectural terracottas, which were crucial to the construction of public and private buildings. Additionally, it will touch upon the role of such materials within the wider Mediterranean trade networks, providing a glimpse into their use beyond the immediate context of Athens. This contribution will offer new insights into an often-overlooked aspect of Athenian building industries, and lay the foundation for further investigation into the technological, social, and economic dimensions of CBM production in the ancient city.

**2164. A ROOF FOR THE DEAD: TERRACOTTA TILES IN BURIALS FROM THE CLASSICAL TO THE LATE ANTIQUE PERIODS**

**Contribution format:** Oral

**Contribution authors:** Annalize Rheeder (Independent researcher)

Roof terracottas appear in burials throughout the Mediterranean world in a variety of ways. An analysis of gabled roof tile graves from the Kerameikos in Athens and Pergamon, for example, reveal patterns of re-use and adaptation of building materials. Not only do wear patterns show that the tiles had formed part of functioning roofs for an extended period before burial. But the range of tile types suggest they came from different sources and time periods. Persons of humble economic means did have a variety of burial methods which did not involve roof terracottas to choose from. This raises the question of additional factors which might have led to the appeal of roof terracottas used in burials. Their frequent depiction in grave monuments and sarcophagi as well as their description in textual sources might suggest that this material was chosen for more than just its economic and functional properties. Conceptual links between roof tiles, architecture and the practice of creating a “house for



the dead” require further consideration.

2414. ALTERNATIVE USE OF BRICK AND TILE: GAME BOARDS AND „WRITING TABLETS” FROM ROMAN PANNONIA

**Contribution format:** Poster  
**Contribution authors:** Linda Dobosi (Eotvos Lorand University | HUN-REN-ELTE Research Group for Interdisciplinary Archaeology)

Roman ceramic building material is a frequent find at archaeological excavations and is an important source of information about Roman architecture. However, bricks and tiles were not only used in the construction industry, but had other, unconventional uses as well. Sometimes during the manufacturing process the soft clay was used for drawing or writing and when the bricks were fired, the markings became permanent. This way, the green tiles could be made into game boards, such as boards for nine men’s morris or ludus latrunculorum games. Also, the green tiles were suitable for recording writing, like detailed accounts of the production of a tilery or even jokes. In other cases, the bricks or tiles were turned into game boards or writing tablets after firing. The markings, lines or letters were scratched to the surface of the tiles often in a stage of re-use. The paper explores the use and re-use of tiles as game boards or writing surfaces in Roman Pannonia based on finds in the collection of Hungarian museums.

188 THE EPIGRAVETTIAN WORLD

**Session theme:** 7. Climate Change in the Past and Present  
**Session format:** Regular session  
**Session keywords:** Final Upper Palaeolithic, Climatic change , Land mammals, Human adaptation , Settlement patterns, Symbolic behavior  
**Session organisers:** Beniamino Mecozzi (Sapienza, University of Rome) – Nicolò Fasser (Universita` degli Studi di Ferrara) – Antonin Tomasso (Université Côte d’Azur CNRS CEPAM) – Dusan Boric (Sapienza, University of Rome) – Federica Fontana (Universita` degli Studi di Ferrara)

SESSION ABSTRACT

The Epigravettian corresponds to one of the final Upper Palaeolithic culture-historical taxonomic units in Europe. Many sites have been attributed to the Epigravettian over a wide area —from south-eastern France, Italy, and the Balkans to Russia and Armenia. The onset is almost synchronous across this territory with the start date of around 26 and 24 ka cal BP, whereas the end date is variable from region to region but could generally be said to correspond to the end of the Pleistocene. The term Epigravettian was introduced to emphasize continuities with the preceding Gravettian, pointing to a higher stability over the long-term in the regions where it has been detected compared to western Atlantic areas of Europe. However, the definition of this techno-complex is not identical in the Mediterranean and in central and eastern Europe and regional and diachronic divergences have been highlighted. The Epigravettian aligns with the end of the Last Glacial period, marked by a decline in biodiversity among mammalian palaeocommunities and changing in vegetation due to climatic instability. This session aims to bring together researchers from diverse disciplines to develop an interdisciplinary approach in characterizing the significant climatic, environmental, and landscape changes that occurred during the Epigravettian period and corresponding human adaptations in these territories. We invite speakers to present works characterized by multidisciplinary approaches, which could include aspects of human adaptations based on technological systems, paleoenvironmental reconstructions based on faunal and isotope analyses, subsistence and land-use strategies in different environments, settlement patterns, and symbolic behavior. We would like to provide a forum for a large-scale comparison and for updating the chronological framework of the Epigravettian by discussing connections, interactions, and human mobility and migration over this wide territory, and over the period that saw dramatic climatic and environmental changes.

CONTRIBUTION ABSTRACTS

2326. EPIGRAVETTIAN SUBSISTENCE HABITS AND SITE FUNCTIONS IN THE MIDDLE DNIPRO AND DNISTER VALLEYS DURING THE LATE PLENIGLACIAL

**Contribution format:** Oral  
**Contribution authors:** Stéphane Pean – Laëtitia Demay (Muséum national d’Histoire naturelle, UMR 7194 HNHP, Paris) – Pavlo Shydlovskiy (Taras Shevchenko National University of Kyiv. Department of Archaeology and Museology) – Dmytro Stupak (National Academy of Sciences of

Ukraine, Institute of Archaeology, Kyiv) – Larissa Koulakovska (National Academy of Sciences of Ukraine, Institute of Archaeology, Archaeology Museum, Kyiv)

During the Late Pleniglacial, Epigravettian cultural traditions spread throughout Central and Eastern Europe. In particular, large open-air settlements have been notably found out in the middle Dnipro and Dnister valleys. They have raised issues about woolly mammoth procurement and processing techniques among large mammal exploitation of food and not dietary resources, such as osseous artefacts and, in the Dnipro basin, dwelling structures. Zooarchaeological studies, including taphonomy, were carried out on faunal materials from deposits located in the Middle Dnipro basin (such as Mezhyrich and Buzhanka 2) and the Dnister valley (notably the Korman sites), in their palaeoecological and archaeological contexts. Mammoth appears as the main resource in the Mezhyrich residential campsite, which is known for 4 mammoth bone dwellings surrounded by pits. Conversely, reindeers and horses are the main game at Korman IX, which was occupied as a temporary camp. Regional comparative analyses provide a new understanding of the Epigravettian subsistence practices, settlement modalities and territorial mobility in two large river basins between the East Carpathian and East European Plain areas.

596. EXPLOITATION OF GEOLOGICAL SOURCES OF FOSSILIZED MOLLUSC SHELLS IN THE EPIGRAVETTIAN DANUBE BEND AREA

**Contribution format:** Oral  
**Contribution authors:** Csaba Bálint (Eötvös Lóránd University | Dobó István Vármúzeum)

Excavations done on the various Epigravettian sites of Central Northern Hungary’s Danube Bend area have yielded sizeable amounts of mostly unmodified, fossilized tertiary mollusc shells. At most of the sites these shells were scattered throughout the habitation surface, and, moreover at the site of Szob-Ipolypart they were arranged into piles, interpreted as storage deposits. The shell assemblages present at the sites show distinct preferences of mollusc shells mainly focusing on one to three different genera. These prefereces hint at conscious selection during the procurement process. The Danube Bend area possesses numerous exposed sediments bearing tertiary marine fauna that were available as possible sources during the Epigravettian. This presentation focuses on pinpointing the geological sources that could have been utilized for collecting these items per site, attempts to discern how many different sources would have been needed to procure these assemblages and if the obtaining of shells could have been embedded into lithic raw material procurement strategies.

1009. SYMBOLISM OR FUNCTION? AN INTEGRATIVE FUNCTIONAL ANALYSIS OF EPIGRAVETTIAN GLYCYMERIS SHELLS FROM VLAKNO CAVE

**Contribution format:** Oral  
**Contribution authors:** Barbara Cvitkusic (Sapienza University of Rome | Institute for Anthropological Research, Zagreb) – Emanuela Cristiani (Sapienza University of Rome) – Dario Vujevic (University of Zadar)

In the Adriatic region, climate changes from the Last Glacial Maximum (LGM) to the early Holocene significantly transformed landscapes, turning inland sites into coastal environments and affecting subsistence strategies, raw material procurement, and symbolic expressions such as body ornamentation. Vlakno cave, located on the island of Dugi Otok on the Eastern Adriatic coast of present-day Croatia, provides a unique opportunity to study these transitions, as evidenced by its rich archaeological assemblage. The preliminary geoarchaeological analyses indicate strong anthropogenic processes in almost all layers, with no visible hiatus apart from the tephra deposit. Notably, Vlakno Cave has yielded the most extensive Late Upper Palaeolithic assemblage of marine shells in the region, including various bivalve species used as food or ornaments. Recent archaeological and ethnographic research suggests that certain bivalve shells served multiple purposes, including as tools and containers. Here, we present our study of Glycymeris spp. shells, primarily considered as ornaments. After detecting use-wear traces along the inner edge, we explored their ambiguous function through microscopic surface analysis, supported by a reference collection of experimentally produced use-wear traces. By processing various animal, vegetal, and mineral materials on fresh Glycymeris specimens, we aim to discern wear patterns and clarify the possible functions of the archaeological specimens, which may represent the first Epigravettian and earliest known shell tools in the Adriatic region.

2216. THE RECOLONISATION DYNAMICS OF THE MIDDLE DNIPRO BASIN BY EPIGRAVETTIAN GROUPS

**Contribution format:** Oral  
**Contribution authors:** Diana Dudnyk (The Institute of Archaeology of the National Academy of Science of Ukraine) – Marharyta Chymyrys – Pavlo Shydlovskiy (Taras Shevchenko National University of Kyiv) – Ostap Tsvirkun (National Museum of the History of Ukraine) – Daria Alekseenko (Taras Shevchenko National University of Kyiv)



The most well-documented and extensively studied Epigravettian sites in Ukraine are associated with the Mizyn and Mezhyrich industries. The Barmaky site, linked to the Mizyn cultural tradition, represents the earliest known Epigravettian presence in the Middle Dnipro Basin, dating to approximately 19 kyr cal BP. Situated on the Volhynian Plateau during the initial stages of Scandinavian ice sheet degradation, the site marks the beginning of the region’s recolonisation after a 5–6-thousand-year period of depopulation. Geoarchaeological and climatic studies, combined with lithic analysis and resource exploitation models, identify Barmaky as a winter base camp for pioneering groups. The Mezhyrich site gives its name to the Mezhyrich industry, which also includes sites such as Dobranichivka, Gintsi, Semenivka 1, 2, 3, and Buzhanka 2. Among these, Mezhyrich remains a focal point of scientific inquiry, with a chronology of approximately 18–17 kyr cal BP. Excavations have uncovered four above-ground dwellings at Mezhyrich, alongside storage pits and a rich archaeological inventory, classifying it as a multi-layered settlement. Current research primarily focuses on Dwelling No. 4 and its associated features. Among all the Epigravettian sites in the Middle Dnipro Basin, Gintsi (upper layer k), Semenivka 1 and 2 are identified as specialized sites associated with the Mezhyrich industry. These sites are considered as temporary summer hunting camps. The recolonisation of the Middle Dnipro Basin by Epigravettian groups began with an opportunistic model of resource exploitation, as evidenced at Barmaky. However, during the peak of the Epigravettian techno-complex, more diversified forms of adaptation emerged, exemplified by sites associated with the Mezhyrich industry.

**2093. UTILISATION OF PEBBLE RAW MATERIALS DURING THE UPPER PALAEOLITHIC: THREE ASSEMBLAGES FROM HUNGARY**

**Contribution format:** Oral  
**Contribution authors:** András Markó (University of Szeged)

The exploitation of pebble outcrops as raw material sources had several advantages during the Prehistory. First, during the fluvial transport or abrasion near the marine or lake shores the inhomogenities of the raw rocks were removed by rolling and sediment transport. Secondly, the pieces of optimal dimensions and shapes could have been easily collected from the loose sediments, and, finally, in some cases various raw material type. including coarse grained quartzite and fine siliceous rocks could have been available from single outcrops or geological formations. In Hungary a special variant of the Upper Palaeolithic industries, the so-called Ságvárian or Pebble Gravettian, oriented towards the pebble manufacture, dated to the LGM were recognised during the 1990s. In the presentation we review some technological traits of the lithic collections excavated at Szob and Mogyorósbánya (Northern Hungary) and Madras lying in the southernmost part of the Great Plain (Alföld) in Hungary. As a result, two main methods were identified: blade and bladelet reduction based on single-platform cores and bladelet production from burin cores shaped basically on cortical flakes. The characteristic by-products (pebble slices and segments, naturally backed knives as well as ‘geometrically broken pebble types’) emphasized earlier, all belong to the special blank production based on raw material types collected from secondary raw material sources.

**1328. FUNCTIONAL VARIABILITY OF EPIGRAVETTIAN BURINS: A COMPARATIVE STUDY OF RIPARO TAGLIENTE (ITALY) AND BADANJ (BOSNIA AND HERZEGOVINA)**

**Contribution format:** Oral  
**Contribution authors:** Alice Vinet (Ferrara University) – Emanuela Cristiani (La Sapienza University) – Davide Visentin (Ferrara University) – Adisa Lepić – Ana Marić (National Museum of Bosnia and Herzegovina) – Federica Fontana (Ferrara University) – Dušan Borić (La Sapienza University)

The Late Pleistocene was marked by profound climatic and environmental transformations that influenced the adaptive strategies of hunter-gatherer communities. In the circum-Adriatic region, Epigravettian groups responded to these shifts through technological innovations and flexible settlement strategies, leading to the long-term occupation of key sites such as Riparo Tagliente (Italy) and Badanj (Bosnia and Herzegovina). Within the framework of the AFTER THE ICE project, this study examines the functional variability of Epigravettian burins from these two persistent places, aiming to understand the evolution of their use over time. By employing an interdisciplinary approach that integrates use-wear and residue analysis, we explore the functional diversity of burins, emphasizing their role as highly versatile tools rather than standardized implements. This comparative study explores diachronic patterns in tool function, shedding light on shifts in subsistence strategies, craft production, and site use in response to environmental and socio-economic changes. The results will contribute to broader discussions on the role of chipped stone tools in Epigravettian adaptations. By integrating functional analysis with other archaeological material culture studies, this research enhances our understanding of how prehistoric hunter-gatherers organized their technological systems in a dynamic landscape.

**1594. TRACING CONNECTIONS AND INTERACTIONS WITHIN THE ADRIATIC REGION THROUGH LITHIC PROJECTILE IMPLEMENTS**

**Contribution format:** Oral  
**Contribution authors:** Nicolò Fasser (University of Ferrara) – Adisa Lepić – Ana Marić (National Museum of Bosnia and Herzegovina) – Davide Visentin (University of Ferrara) – Dušan Borić (Sapienza University of Rome | New York University) – Federica Fontana (University of Ferrara)

The Late Epigravettian corresponds to the Late Glacial, a phase characterised by landscape and environmental changes in response to the climatic amelioration of the Bølling-Allerød interstadial. Such changes are particularly marked around the Great Adriatic Po region. The gradual loss of the land to sea, the glaciers’ retreat, and the reforestation processes deeply affected the territorial organisation of Late Palaeolithic hunter-gatherer communities of both the Balkans and Italy. Despite these dramatic transformations, human groups from the western and the eastern Adriatic coast seem to have followed a similar cultural evolution. Evidence of extensive social networks is highlighted by several cultural traits: from siliceous rock exchanges and affinities in lithic technology to similarities in ornamental traditions and decorative motifs. Even recent genomic data attest to population movements from the Balkan/Anatolian regions to Italy. In this context, to gain a more comprehensive understanding of the extent of interactions between Italy and the Balkans, we conducted a study focused on projectile implements from two Late Epigravettian sites with contemporaneous chronological sequences: Riparo Tagliente (VR, Italy) and Badanj (Bosnia and Herzegovina). This study goes beyond the typological approach by investigating whether the morphological affinities between the two areas correspond to the same production modalities—from blank selection to retouch methods and techniques. Projectile implements, being the most variable lithic tool type through time and space, are an effective marker in evaluating the extent of interactions and exchanges/mobility between Italy and the Balkans from a diachronic perspective. By studying this category of lithic tools, we are able to assess the role of the Adriatic Plain in the diffusion of technical know-how.

**2233. REVISING BATTAGLIA ROCK SHELTER LITHIC ASSEMBLAGE (NE ITALY): THE LATE EPIGRAVETTIAN EXPLOITATION OF THE HIGH PLATEAUS AND THEIR LITHIC RESOURCES**

**Contribution format:** Oral  
**Contribution authors:** Marzio Cecchetti – Nicolò Fasser (Dipartimento di Studi Umanistici, Università degli Studi di Ferrara) – Viviana Frisone (Musei Civici di Vicenza, Museo Naturalistico Archeologico) – Federica Fontana (Dipartimento di Studi Umanistici, Università degli Studi di Ferrara)

Among Late Epigravettian adaptations in northeastern Italy, the recolonisation of the southern Alpine fringe and the inner territories is a significant process with repercussions in territorial systems, resource exploitation, mobility, and cultural connections. Battaglia rock shelter (Vicenza, Veneto region, Italy), located at 1.050 m a.s.l. on the Asiago plateau and investigated in the early 1960s, represents one of the earliest discoveries of an Alpine Late Palaeolithic highland site. Following the advancement of methodological approaches, a revision of Battaglia rock shelter lithic assemblage aims to reconstruct the lithic reduction strategies conducted at the site and define a more precise chronology for its occupation. This allows a better understanding of the site in the context of Late Epigravettian territorial and resource exploitation strategies. Many tested blocks, pre-cores and cores at an early stage of exploitation, as well as corticated items, characterise Battaglia rock shelter lithic assemblage. These traits are shared with the well-known nearby site of Val Lastari, which is considered a specialised location for chert procurement. Therefore, this study highlights the importance of Battaglia rock shelter as another site strategically oriented toward the exploitation of the rich lithic resources of the Asiago plateau. Additionally, the site may represent one of the earliest highland occupations after the LGM in the Alpine region, providing insights into the timing of the re-occupation of the high plateaus by Late Epigravettian hunter-gatherer groups and the reasons behind their logistic displacements.

**1318. RECONSTRUCTING THE EVOLUTION MAMMALIAN PALAEOCOMMUNITIES IN THE FUCINO BASIN OF CENTRAL ITALY DURING THE LAST GLACIAL**

**Contribution format:** Oral  
**Contribution authors:** Beniamino Mecozzi – Dusan Boric (Sapienza University of Rome) – Francesca Alhaique (Museo delle Civiltà, Rome)

The Fucino Plain (649–667 m asl) is currently one of the main agricultural areas in central Italy today, but in the past it hosted the third-largest lake in Italy that was artificially drained in 1875. The shoreline of the Fucino Lake fluctuated through time, reaching 710 m asl between approximately 20 and 18 kya cal BP and 680 m asl between approximately 15 and 14 kya cal BP. The Fucino Basin is surrounded by the Apennine mountains, including Mount Velino (2487 m) and Mount Sirente (2349 m). The presence of this extensive lake (ca. 150 km²) created a favorable microclimate during the cold climatic conditions of the Late Glacial period, encouraging human occupation of the



area. Several caves were discovered and excavated between the 1950s and 1960s, mainly under the supervision of Antonio Maria Radmilli. These include Grotta della Continenza, Grotta Di Ciccio Felice, Grotta di Ortucchio, Grotta La Punta, Grotta Maritza, Grotta Tronci, and Riparo Maurizio. These caves yielded large paleontological and archaeological assemblages, referable to the Upper Paleolithic and dated between approximately 18 and 10 ka. Zooarchaeological analyses indicate that humans probably occupied this region year-round, taking advantage of the favorable microclimate created by the lake. Furthermore, the results suggest that carnivores also used and accumulated bones in these same caves when humans were not present, highlighting a complex pattern of cave frequentation. This study presents a comparison of the mammal assemblages collected from these caves, offering insights into the evolution of terrestrial ecosystems in the Fucino Basin and their responses to climatic changes. The analysis of mammal remains will enable us to investigate changes in palaeocommunities between 18 and 10 kya cal BP, including the potential mammal size changes driven by climate variations.

2137. WHAT ABOUT THE “EVOLVED EPIGRAVETTIAN”? NEW TECHNOLOGICAL DATA ON LITHIC ASSEMBLAGES FROM SOUTHERN ITALY

**Contribution format:** Oral  
**Contribution authors:** Matteo Rossini (Department of Physical Sciences, Earth and Environment, University of Siena) – Antonin Tomasso (Université Côte d’Azur CNRS CEPAM) – Clarissa Dominici (Department of Archaeology, Simon Fraser University | Department of Physical Sciences, Earth and Environment, University of Siena) – Adriana Moroni – Francesco Boschin (Department of Physical Sciences, Earth and Environment, University of Siena)

The definition of the so-called Evolved phase of the Epigravettian (ca. 16000 to 15000/14500 uncal. BP) remains debated. It was originally defined on a typological classification of undated archaeological layers. Several scholars disagree on the validity of this label, and, over the years, different proposals have been put forward regarding the integration of this period into either the Early or Late Epigravettian phases. In the light of this debate, the modern research focuses on a new study of lithic assemblages assigned to the Evolved Epigravettian. Here we present new unpublished data from two lithic assemblages: layer 9C of Grotta Paglicci (18,190– 18,984 Cal BP; Rignano Garganico, Apulia, Italy) and layer O of Grotta della Cala (Marina di Camerota, Salerno, Italy). We particularly conducted technological and petrographic analyses of lithic assemblages in combination with functional analyses of backed pieces. These two sites represent reference points for the Epigravettian in southern Italy, as they contain key stratigraphic sequences related to the Upper Palaeolithic. We compare the assemblages from layers 9C and O with recently published data on the Italian Epigravettian, combining technological and palaeoenvironmental perspectives, and discuss the data and their possible relevance to hunter-gatherer behaviour.

1840. (RE)CONSTRUCTING HOME: AN ETHNOARCHAEOLOGICAL APPROACH TO SHELTER CONSTRUCTION IN DYNAMIC ENVIRONMENTS

**Contribution format:** Oral  
**Contribution authors:** Tullio Abruzzese – Wei Chu (Department of World Archaeology, Faculty of Archaeology, Leiden University)

The Late Pleistocene in East-Central Europe is broadly characterized by a cooler climate and dynamic landscapes. Being able to build shelters as needed without relying on natural features such as caves, is one of the factors contributing to the spread of hominins in different biomes. However, the archaeological record does not offer definitive evidence to argue for the presence of shelters beyond doubt. This may result from an incomplete understanding of what shelters looked like, and where and how to identify them archaeologically. Posited evidence for shelters comes mainly from post hoc analyses of known sites, and reconstructions of their appearance are often based on little information. Examples of this are the infamous East-Central European Epigravettian mammoth bone structures interpreted as shelters, but poorly understood, especially when considering the reconstruction of their aspect. In this contribution, we propose an ethnoarchaeological approach to study and interpret archaeological evidence for Late Pleistocene shelters. We use diverse ethnographic accounts to create a database of shelters built by forager societies. We collect data on exterior appearance, building techniques, placement, as well as camp organization, settlement systems, and social dynamics in various biomes. We expect to detect patterns in the ways foragers situate, design, and make use of shelters. Based on these patterns, our objective is to create a frame of reference to find, recognise, and meaningfully interpret the archaeological traces left by Late Pleistocene hominins’ shelters. Identifying and describing prehistoric shelters has important consequences for understanding how past hominins lived and spread during the unpredictable environmental fluctuations of the Late Pleistocene. Clarifying shelter use will offer a better understanding of how hominins coped with vast landscapes without relying on the presence of caves and rock shelters. This will provide a frame of reference to understand shelters’ role within the social, cultural, and adaptive dynamic. of past people.

246. LAPLACE MAY HAVE BEEN WRONG, WHAT IF EPIGRAVETTIAN DOES NOT EXIST?

**Contribution format:** Oral  
**Contribution authors:** Antonin Tomasso (Université Côte d’Azur CNRS CEPAM)

Epigravettian was first defined in Italy by Laplace during the 1950s. At that time he emphasised the contrasting development of the lithic industries between two parts of Europe during the second half of the Palaeolithic: western Europe would have experienced several ruptures, while eastern and southern Europe were characterised by the continuation of Gravettian traditions up to the Mesolithic. Even if Italian authors qualified this perception of what Laplace wanted to call Tardigravettian and what became our Epigravettian, they did not radically rethink Laplace’s initial model. Moreover, the extension of the Epigravettian to a large part of south-eastern Europe was done with reference to Laplace’s notion of a perduration of the Gravettian traditions. The Epigravettian question is symptomatic of the weakness of the taxonomic models used to describe the Palaeolithic. These models have been developed empirically and are not based on a common definition of the criteria used, their hierarchy, the causal relationships that link them and their historical meanings. It is therefore particularly interesting to critically discuss the Epigravettian notion in order to feed a global reflection on our perception of changes and their historical meanings during the Palaeolithic. In this paper we will propose a critical review of the current definitions of Epigravettian. First, we will consider Laplace’s initial proposal and the extent to which his initial hypotheses can be accepted or refuted in the light of modern data. Secondly, we will propose an overview of the arguments used in different contexts to associate sites to the “Epigravettian” and thus discuss the real consistency of the “Epigravettian world”.

189 THE ADRIATIC SEA AS A CULTURAL CORRIDOR DURING LATE PLEISTOCENE AND EARLY HOLOCENE: MOBILITY AND INTERREGIONAL CONTACTS

**Session theme:** 1. On artefacts and beyond  
**Session format:** Discussion session  
**Session keywords:** Mobility, Interregional Contacts, Upper Paleolithic, Mesolithic, Neolithic, Adriatic sea  
**Session organisers:** Alejandro Sierra (Universitat Autònoma de Barcelona) – Aitor Ruiz-Redondo (Universidad de Zaragoza) – Marc Vander Linden (Bournemouth University)

SESSION ABSTRACT

The Adriatic Sea has played a fundamental role in human history as a corridor for communication and mobility. The distinctiveness of this region lies in its geographical position and the high sensitivity of its basin to climatic variations and sea-level changes. During the Last Glacial Maximum (LGM, c.y 19,000 cal BP), sea levels reached their lowest point, creating a vast land plain providing a habitable expanse where human groups could move, settle, and establish interaction networks. Towards the end of the Pleistocene, rising sea levels gradually submerged this plain, transforming the region’s geography and landscapes. Yet, the Adriatic Sea did not impede contact between human populations living on its shores. Societies continued to adapt, developing and using maritime technologies to cross the sea, settling on emerging islands, and maintaining networks, particularly as the Neolithic period expanded. This session seeks to explore these topics by examining how the last Palaeolithic and Mesolithic hunter-gatherer groups and the earliest farming communities viewed and used the Adriatic as a route for exchange and interaction. We invite contributions exploring themes such as coastal mobility and adaptation, archaeological evidence of early navigation, cultural and technological exchanges, and the role of the Adriatic as a crossroads for innovation and convergence between Eastern and Western Mediterranean traditions. We welcome the use of diverse techniques and methodologies to investigate these topics, encouraging interdisciplinary approaches that can offer new insights into this dynamic region’s historical interactions and adaptations.

CONTRIBUTION ABSTRACTS

484. NEW DATA AND PERSPECTIVES ON THE EPIGRAVETTIAN HUMAN OCCUPATIONS OF BADANJ ROCKSHELTER (BOSNIA AND HERZEGOVINA)

**Contribution format:** Oral  
**Contribution authors:** Aitor Ruiz-Redondo (IUCA, University of Zaragoza | CAHO, University of Southampton) – Marta Alcolea (IUCA, University of Zaragoza) – Virginia Barciela (INAPH, University of Alicante) – Catherine Ferrier (PACEA, Université de Bordeaux) – Cristina López-Tascón (Autonomous University of Madrid) – Siniša Radović (Institute for Quaternary Palaeontology and Geology, HAZU (Croatia)) – Alejandro Sierra (Università di Pisa)



– Marc Vander Linden (IMSET, University of Bournemouth) – Selena Vitezović (Institute of Archaeology, Belgrade) – Nikola Vukosavljević (FFZG, University of Zagreb)

Badanj rockshelter is a major Upper Palaeolithic site in south-eastern Europe. It was first identified in 1974 when local residents discovered lithic artefacts, which were subsequently reported to Đ. Basler of the National Museum in Sarajevo. Recognising the site’s potential, Basler promptly initiated excavations. The initial excavations revealed a remarkably rich assemblage, yielding over 20,000 lithic remains dating to the end of the Pleistocene (Late Epigravettian). Among the finds were hundreds of personal ornaments and dozens of engraved bone fragments, rare components in the Palaeolithic record of the Balkan Peninsula at the time and notable even today. This first campaign also led to an extraordinary discovery: a large engraved boulder buried beneath archaeological layers, marking the site as the first Palaeolithic rock art locality identified in the Balkan Peninsula. Following two excavation campaigns in the 1980s, led by Z. Kujundzić and R. Whallon, our team resumed fieldwork at the site in 2019. Over the past seven years, we have uncovered a sequence spanning ~20 ka to ~12.7 ka cal BP, supported by 22 new radiocarbon dates that have expanded and refined the previously established chronology. An international and multidisciplinary project has facilitated the chronological and technological analysis of the rock art, lithic and bone tools, and personal ornaments, contextualised through subsistence and environmental data obtained via geoarchaeological, zooarchaeological, and archaeobotanical studies. These results establish Badanj as a key site for understanding the Late Pleistocene in south-eastern Europe.

**2030. SHIFTING SHORES, SHIFTING NETWORKS: RAW MATERIAL PROCUREMENT AND CULTURAL CONNECTIVITY IN NORTHERN DALMATIA FROM LATE UPPER PALAEOLITHIC TO THE NEOLITHIC**

**Contribution format:** Oral  
**Contribution authors:** Maja Grguric Srzentic – Mario Bodruzic – Ana Jagić (University of Zadar, Department of Archaeology) – Zlatko Perhoč (Independant researcher) – Dario Vujević (University of Zadar, Department of Archaeology)

The Adriatic Plain has long served as a corridor for human movement, exchange, and adaptation. During the Upper Palaeolithic, climatic fluctuations and post-glacial sea-level rise reshaped mobility pathways and resource procurement strategies. Vlakno Cave, a well-stratified Epigravettian site on the eastern Adriatic coast, offers critical insights into these processes. Lithic assemblages from Vlakno reveal a strategic approach to raw material procurement, with both local cherts and non-local materials, including those from the western Adriatic coast. These distant raw materials are not only evidence of resource acquisition but also of cultural transmission across the Adriatic. However, their disappearance from Vlakno’s record coincides with rising sea levels, suggesting that marine transgression disrupted these long-established connections. Notably, these links were reestablished in the Early Neolithic, as evidenced at sites such as Ždrilo Cave near Rovanjaska, by the reappearance of western Adriatic raw materials, likely facilitated by seafaring. It remains unclear whether this maritime connectivity was established during the Late Mesolithic or emerged only with the spread of agriculture and early pastoralism in the eastern Adriatic. The absence of Late Mesolithic sites limits our understanding of this transition. This paper examines lithic procurement patterns at Vlakno Cave within the broader framework of Adriatic connectivity, comparing evidence across multiple sites. By integrating lithic analysis with paleoenvironmental data, we explore how Epigravettian, Mesolithic, and Neolithic groups responded to environmental change and how these adaptations shaped long-distance interaction in the region.

**315. SOCIAL IMPLICATIONS OF EARLY NEOLITHIC SEA TRANSPORT: ETHNOARCHAEOLOGICAL AND ETHNOGRAPHIC HINTS AT SOCIAL COMPLEXITY**

**Contribution format:** Oral  
**Contribution authors:** Thomas Rocek (University of Delaware) – Radomír Tichý (University of Hradec Králové)

The rapid spread of early Neolithic adaptations along the northern Mediterranean coast has long been recognized as involving water transport. Archaeological finds of preserved dugout canoes such as those from the Impresso-Cardial occupation at La Marmotta in Lake Bracciano near Rome, Italy, have provided increased insight into the technology involved. Complementarily, experimental archaeological work by the University of Hradec Králové has demonstrated the effectiveness of such canoes for long-distance sea transport. However, while the technological aspects of the Neolithic maritime expansion are becoming increasingly clear, relatively limited research has been devoted to the social context of the process. . We combine data from the experimental archaeological work, specifically the construction of a series of replica dugout canoes and four long-distance voyages (expeditions Monoxylyon I through Monoxylyon IV) with ethnographic data from the Northwest Coast of North America to consider the social implications of manufacturing and using such craft. While the ethnographic and early Neolithic cases have significant differences, we argue that the labor requirements for construction of the canoes, and particularly the organization of and commitment to such long-distance trips, combined with the evidence of long-distance transport of exotic materials, implies a level of social complexity that is not immediately evident in

the currently known archaeological record of Impresso-Cardial or other early circum-Mediterranean Neolithic sites. Such organization may have included the development of some degree of social-hierarchy; minimally, it involved cooperative social units well organized above the household level.

**136. EXPLORING LIVESTOCK MANAGEMENT AND SEASONAL RHYTHMS IN EARLY NEOLITHIC ADRIATIC COMMUNITIES**

**Contribution format:** Oral  
**Contribution authors:** Alejandro Sierra (Dipartimento di Civiltà’ e Forme del Sapere, Università di Pisa) – Marie Balasse (AASPE, CNRS MNHN, Paris) – Sinisa Radovic (Croatian Academy of Sciences and Arts) – Francesca Alhaique (Servizio di Bioarcheologia, Museo Delle Civiltà, Roma) – Denis Fiorillo (AASPE, CNRS MNHN, Paris) – Jean-Denis Vigne (AASPE, CNRS MNHN) – Mirella Cipolloni Sampò (Università degli Studi della Toscana, Viterbo) – Jean Guilaine (Collège de France)

The Adriatic region played a pivotal role in the Neolithization process of the central and western Mediterranean, notably marked by the spread of Impressa pottery complex. This “maritime stream” underscores a significant cultural cohesion between the Adriatic coasts, facilitated by sustained exchanges and shared elements of material culture. Economically, both regions share an emphasis on sheep herding and barley cultivation, although they differ in their use of wild resources, reflecting both local adaptations and cultural preferences. However, knowledge about livestock practices remains limited, particularly regarding animal management and exploitation. This study aims to characterize livestock practices in the Adriatic during the early Neolithic, focusing on sheep, the predominant species. By examining mortality profiles from sites on both Adriatic coasts, the study seeks to uncover herd demographic management and production orientations. Furthermore, the analysis includes pastoral calendars from sites such as Tinj and Crno Vrilo (Dalmatia) and Trasano and Rendina (southern Italy), with particular attention to the timing of lambing cycles. This may provide insights into potential early practices of autumn lambing deseasoning, a method still observed in contemporary Mediterranean contexts. The findings will shed light on the adaptive strategies of these early agropastoral communities and their socio-economic organization. This study highlights the Adriatic’s central role as a cultural and economic nexus in the Mediterranean during the Neolithic, contributing to a broader understanding of the region’s impact on the spread and development of early farming practices.

**2375. HUMAN-ENVIRONMENT INTERACTIONS IN THE UPPER PLEISTOCENE: NEW ARCHAEOZOOLOGICAL EVIDENCE FROM BADANJ ROCKSHELTER**

**Contribution format:** Poster  
**Contribution authors:** Sinisa Radovic (Institute for Quaternary Palaeontology and Geology, HAZU (Croatia)) – Alejandro Sierra (Università di Pisa) – Nikola Vukosavljević (FFZG, University of Zagreb) – Aitor Ruiz-Redondo (IUCA, University of Zaragoza | CAHO, University of Southampton)

Badanj rockshelter is a key Upper Palaeolithic site in south-eastern Europe. Excavations began in 1974 and uncovered numerous lithic and bone remains from the Late Epigravettian, along with personal ornaments and engraved bone fragments. The discovery of the first known Palaeolithic rock art in the region highlights its cultural significance. Recent fieldwork (since 2019) has refined the site’s chronology (~20 ka to ~12.7 ka cal BP) through radiocarbon dating. Multidisciplinary research has enhanced our understanding of human occupation, subsistence, and symbolic expression in the Late Pleistocene Balkans. Within this new research, the archaeozoological study of the sequence is essential for understanding the subsistence strategies of Late Pleistocene hunter-gatherer societies. This study aims to present the preliminary results of the faunal analysis and compare it with the archaeozoological analysis of old excavations (Miracle 1995; 1996). By examining the faunal remains found across different stratigraphic levels of the rich sequence, we will analyze shifts in subsistence strategies and their relationship with climatic and landscape changes. Expected outcomes include identifying variations in prey selection and hunting techniques over time, assessing the impact of environmental fluctuations on resource exploitation, and reconstructing seasonal mobility patterns. These findings will contribute to a broader understanding of the region’s human-environment interactions during the Late Pleistocene.

**190 ARCHAEOLOGY, ORAL TRADITION AND PLACE NAMES – NEW PERSPECTIVES**

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Regular session  
**Session keywords:** Archaeology, Ethnology, Toponymy (place names), Landscape studies, Oral tradition,



Interdisciplinarity  
**Session organisers:** Alexandra Vieira (Polytechnic Institute of Bragança (IPB)) – Tönno Jonuks (Estonian Literary Museum) – Tomáš Klír (Charles University, Faculty of Arts, Department of Archaeology) – Loredana Lancini (Université catholique de Louvain) – Katja Hrobat Virloget (University of Primorska)

SESSION ABSTRACT

While archaeology provides material evidence through the excavation and analysis of artefacts, oral tradition and toponomastics complement these discoveries by offering historical, cultural and symbolic contexts that are often inaccessible through physical remains alone. Oral tradition is a way to encapsulate the memory of typical features of places, landscape, building, cultural activities, a behaviour observed in all societies. One way to codify the memory in oral tradition is the toponomastics, but there are other ways, like myth, legends, novels, dance, songs, all part of the collective memory of a community. Place names in particular can preserve past symbolic meanings and conceptualisations of places, identity and geography. By integrating archaeology and oral tradition researchers can reinterpret archaeological sites in the light of local narratives. Even if oral tradition constantly changes and adapts to current collective memories, identities, and values through time, researchers have shown that some continuity in its meaning and symbolism can be detected. Furthermore, this multidisciplinary approach allows us to explore how contemporary communities give meaning to landscape and how they associate with past people(s) and ancestral territories, revealing how place names and oral tradition provide the basis for collective identities, even in contexts of change and displacement. Oral tradition is still part of living culture and therefore becomes a tool to manipulate the perception of the past, it is an unexplored field that can be useful as long as it is systematic and based on a strict documentary basis. The abuse of oral history in the context of archaeological monuments is therefore an important subject of research. The ‘new perspectives’ reflect a more holistic approach to the study of the past: this interaction contributes to a more complex and complete view of ancient societies and their connections with present and past landscapes.

CONTRIBUTION ABSTRACTS

418. TOPONYMY: LIVING MEMORIES OF OUR PAST?

**Contribution format:** Oral  
**Contribution authors:** Leonor Maria Pereira Rocha (CHAIA, Universidade de Évora) – Gertrudes Branco (CHAIA, Universidade de Évora | CCDR Centro, Portugal) – António Diniz (CHAIA, Universidade de Évora | CIDEHUS, Universidade de Évora) – Inês Ribeiro (CHAIA, Universidade de Évora | FCT. Phd 2024.00869.BD) – Nelson Almeida (CHAIA, Universidade de Évora)

The information provided by thousands of archaeological excavations tells us about the existence (or not) of human occupation and the respective chronological period. However, in addition to this type of material evidence, there is also the analysis of oral tradition and onomastics that can contribute greatly to the identification or better cataloguing of sites and artefacts. In this context, toponymy translates, in most cases, reminiscences of a past that can be quite distant and that is part of the cultural memory of our populations, especially those in rural areas, who usually tend to preserve and pass on legends and collective memories orally for a long time. In this work, we aim to analyse how toponymy reflects ancient memories by matching names/toponyms to specific types of archaeological sites. It will be interesting to see what kind of toponyms are most represented, by chronological period and by name, which may allow us in the future to draw up lists of toponyms that are more probably to have archaeological sites associated with them.

1157. LANGUAGE CONTACT AREAS AND MOTIVES FOR SETTLEMENT NAMING IN THE MIDDLE AGES. EXAMPLES FROM CENTRAL EUROPE (BOHEMIA, GERMANY)

**Contribution format:** Oral  
**Contribution authors:** Tomas Klir (Charles University, Faculty of Arts, Department of Archaeology)

In the Central European landscape, it is often seen that neighbouring regions were settled at the same time and under the same social and economic conditions, but by different language groups. Scholars have often used place names in these areas to date the foundation of settlements, reveal chronological layering, or determine the origin of the first settlers. However, significant differences in the motives for settlement naming have not been addressed. This contribution focuses precisely on these neglected aspects. The starting point will be contemporary onomastic theories and models developed particularly by R. Šrámek, K. Hengst, E. Eichler and others. We will use the model of the proprial naming act, including the proprial naming motive model, the word-formation model and morphematic analysis. We will compare toponymic systems of the same age in German and Slavic languages in neighbouring areas on the basis of four main logico-semantic categories that can be expressed by

simple questions to which the place names answer: (1) “where”, “where did they come from?”, (2) “who, what?”, (3) “what, what kind”, “under what circumstances?”, (4) “whose?” Our research question is: How do toponymic systems differ and how can these differences be interpreted socially, culturally, linguistically and economically? We pursue this question with regard to study regions in northeastern Bavaria and western Bohemia, while addressing the period of the Early and High Middle Ages (800–1250).

1908. TARA BY NAME, TARA BY NATURE? EXPLORING THE ARCHAEOLOGICAL CONNECTIONS BETWEEN IRELAND’S TEMAIR PLACES

**Contribution format:** Oral  
**Contribution authors:** Susan Curran (The Discovery Programme) – Róisín Burke – Neil Jackman (Abarta Heritage Ltd.)

Few placenames in Ireland resonate with such depths of feelings as that of Tara. The most famous place to bear that name is the Hill of Tara in County Meath, the seat of kings and high kings, scene of myth, legend, and, amongst many scholars, much debate. The Hill of Tara is one of the best-known archaeological complexes in Ireland and has a particular meaning in the sense of identity for the nation in a way that very few other sites can claim. But is it the only one? Clues to the existence of multiple ‘Taras’ are found within historical literary and documentary sources, while ‘Tara’ or ‘Temair’ survives in many placenames across the island. Some of the sites can be located within the landscape, often with associated archaeological remains, whereas others have remained more elusive. At the core of various debates and discussions are the historical or proto-historical accounts of Tara and its landscape, along with the exploration and re-appraisal of the origins of its name, Temair, generally with reference solely to the place that is Tara, Co. Meath, or with the etymology of the name in a philological context. By undertaking a systematic appraisal of the archaeological significance, monumental arrangement, or artefactual associations of those other places that were once or still are called Tara, the ‘Tara by Name, Tara by Nature?’ project explores the connection, if any, between the well-studied Tara, Co. Meath and its namesakes which are found throughout the island. Comprising the acquisition of new archaeological data and the re-use of toponympic, documentary, folkloric, and archaeological material in conjunction with the integration of people and stories from contemporary communities within the various Tara locales, the project aims to shed new light on the origins, functions, intangible heritage, and potential inter-relationships of these places.

128. ANCIENT CEMETERIES AND ABANDONED VILLAGES IN PLACE NAMES AROUND DEBRECEN, HUNGARY

**Contribution format:** Oral  
**Contribution authors:** Flórián Harangi – Annamária Aranyos (Hungarian National Museum) – Szabolcs Balogh (Hortobágy National Park Directorate)

The medieval origin market town of Debrecen (Hungary) had extremely large outskirts until the middle of the 20th century, which merged the territory of several former villages. To the west of the town there were extensive ploughs and pastures, while to the east were woodlands, grazing was adapted to these natural conditions in post-Medieval times. Shepherd and field workers have preserved several place names in oral tradition, mainly associated with Early Bronze Age kurgans, Sarmatian burials and ruined medieval villages. In our paper, we will present case studies related to these place names. The large Early Bronze Age burial mounds were important for orientation in most periods, roads and settlement boundaries were aligned with them, so their names are known even from Late Medieval and post-Medieval litigations. Furthermore, there are countless legends and anecdotes connected to these kurgans. The so-called ‘tatárülések’ (eng.: ‘Tatar seats’) and testhalmok (eng.: ‘body mounds’) were most often associated with the devastation of the Ottoman period in the oral tradition, but they are in fact relics of a much earlier period, these are Sarmatian burial mounds. Sadly, the original names of those Medieval villages which were already deserted in the 13th century, are lost with them. But fortunately, sometimes, due to the brick and stone fragments the commoners are named them e.g. ‘Köves-halom. (eng.: Stony-mound). Also we know the names and locations of several deserted villages from the late Middle Ages. Thanks to the shepherding places and lodgings which kept these place names in the 18th and 19th centuries. Each type of archaeological site is associated with a specific type of toponym. Thus, only a single characteristic place name can predict archaeological sites, which is particularly important for heritage protection.

1610. BETWEEN ARCHAEOLOGY AND ANTHROPOLOGY. ON LIMINAL SPACES, BOUNDARIES, MYTHICAL LANDSCAPE, AND HISTORICAL FRAGMENTS

**Contribution format:** Oral  
**Contribution authors:** Katja Hrobat Virloget (University of Primorska Faculty of Humanities)

The presentation discusses the possibilities of interdisciplinary collaboration between archaeology and cultural anthropology / ethnology. What has seemed some decades ago unthinkable, due to the elusiveness or inaccuracy



of oral tradition perceived from the archaeological side, has recently provided new perspectives of understanding space, the key concept that links both humanistic disciplines. The paper shows some basic theoretical concepts, which enable the interdisciplinary collaboration between the two disciplines. The key elements which connect the two disciplines is the collective memory in the form of oral tradition, embedded in the local landscape. The traditional perception of space can offer a better understanding of some archaeological materials. The oral tradition embedded in the landscape can give us some understandings of the continuity of symbolic values of places, such as liminal spaces or elements of mythical landscape. In this case caves can be understood as the entrance to the other world and monumental stones as remains of an archaic all-European mythical being. Apart from understanding the traditional conceptualization of space the oral tradition linked to landscape can give us even some memory of the historical fragments, what is the case of the oral tradition of Ajdi, the mythical giants.

763. REFLECTION OF IRON AGE BURIAL SITES IN PLACE-LORE

**Contribution format:** Oral  
**Contribution authors:** Pikne Kama (University of Tartu)

This paper examines Iron Age (1-1250 AD) burial sites` reflection in place-lore in southeastern Estonia. These burial places are from the time before the official Christianization of the region and have witnessed many other cultural changes, as there is over a thousand-year gap between the establishment and primary use of sites and the time of folklore collection. Preliminary analysis indicates that approximately 75% of the known Iron Age burial sites are mentioned in place-lore. Place-lore may only acknowledge the existence of ancient burial sites or encompass more elaborate narratives. Longer narratives include descriptions of battles and burials of fallen soldiers, hidden treasures, the foundation of churches in the case of stone graves, the Devil transporting and dropping stones, and various supernatural occurrences in burial sites. In some instances, place-lore seems to result from continuous oral history and collective memory long after the sites` initial use. This seems evident in the case of Iron Age burial sites with historical burial sites at the same spot or in the vicinity (~50% of cases). In other instances, place-lore may have arisen from later discoveries of human remains or grave goods. The analysis reveals that archaeologists primarily have found Iron Age burial sites due to place-lore, suggesting a potential knowledge gap regarding sites not remembered by locals. Consequently, periods or regions lacking burial sites may reflect discontinuities in place-lore rather than the actual distribution of these sites.

1342. ARCHAEOLOGY AND LOCAL TRADITIONS OF MONTE FARINHA (MONDIM DE BASTO, PORTUGAL)

**Contribution format:** Oral  
**Contribution authors:** Alexandra Vieira (Instituto Politécnico de Bragança (IPB)) – José Augusto Gonçalves (Municipality of Mondim de Basto)

Monte Farinha is one of the most striking symbols of the municipality of Mondim de Basto. Its name is linked to a popular legend, which reinforces the richness of the region's oral tradition. At its peak is the Sanctuary of Our Lady of Grace, one of the most important Marian sanctuaries in the north of Portugal. This hill has an important archaeological heritage, with remains of fortified settlements and prehistoric rock art. On the summit, there are traces of three hill forts, evidence of the pre-Roman occupation of the area. Roads, bridges and mining structures testify the Roman presence. Also noteworthy is the existence of an old medieval road that leads to the top of the hill. Monte Farinha is a place of deep-rooted traditions. During the Night of the Pilgrims of Santiago, thousands of pilgrims climb Mount Farinha, singing songs and keeping alive ancestral traditions that are intertwined with the archaeological remains of the place. Along the way, they stop at the “Footprints of the Donkey of Our Lady”, rock carvings that tradition links to the sacred path of the Virgin, wash their faces at the Fonte da Costa, where, according to legend, there was an ancient chapel of São Veríssimo, and pray at the “Pedra Alta”, an ancient menhir still whitewashed and lit votive fires. At the “Capelas dos Passos”, pilgrims pay homage to religious figures and remember the ancient people who once worshipped this sacred mountain. Above, in front of the Sanctuary, they fulfil promises and perform rituals that date back to ancient times, reinforcing the fusion between Christian devotion and ancestral cults rooted in the archaeological landscape. With its combination of archaeological heritage, legends and toponyms, Monte Farinha is a paradigmatic case study, essential for a multidisciplinary approach on archaeology and oral tradition, in Portugal.

2015. ROCKY SEASCAPE, PERCEPTIBLE AND INTANGIBLE INVOLVEMENTS IN COLLECTIVE MEMORY

**Contribution format:** Oral  
**Contribution authors:** Christina Marangou (Independent scholar)

In the North Aegean Sea, on the western coast of Lemnos, the Kastro headland has been occupied diachronically, at least since Late Prehistory, during antiquity and in Medieval till modern times. In several sectors, beyond impressive natural rocky features, the carved volcanic anthropogenic constructions and still perceived petroglyphs, integrated within the natural surroundings of the peninsula, display intricate complexes in a prominent setting.

Current research, confirmed by surface and subsurface mobile finds, indicates that a large part of them would date from the Bronze Age and Iron Age and the main periods of antiquity, including Late Antiquity. Diachronic connections of the site complexes with the seascape and maritime facets seem obvious. However, practical, utilitarian issues, such as economic, trade and nautical matters, material functionalities and activities may not always be obvious, therefore suggesting plausible connections to intangible, including ritual and symbolic, practices or performances. In marginal, transition areas, such as hilly coasts and sea borders, influences from liminal processes are to be expected constantly, including till recent and present times, in the whole island, as attested by ancient texts, myths and local oral tradition. Both utilitarian concerns and symbolic behaviours constitute integral parts of life in successive human communities, past and present, in a permanency of meaningful places. While research continues and many questions remain open, the present paper examines features of the rocky seascape with possible parallels, integrating archaeology and oral tradition, considering various conceivable approaches and directions of interpretation in a continuity of collective memory.

191 CLIMATE CHANGE AND ARCHEOLOGICAL SITES: FROM KNOWLEDGE TO PLANNED CONSERVATION

**Session theme:** 7. Climate Change in the Past and Present  
**Session format:** Regular session  
**Session keywords:** Climate Change, Historical Built Heritage, Archeological Heritage, Risk management, Planned Conservation,  
**Session organisers:** Valentina Russo (University of Naples Federico II | Head of the Post graduate School of Specialization in Architectural Heritage and Landscape SSBAP) – Andrea Ugolini (University of Bologna Alma Mater Studiorum) – Cristina Gonzalez-Longo (University of Strathclyde Glasgow)

SESSION ABSTRACT

The effects of Climate Change (C.C.) on cultural heritage have become a major contemporary challenge. The consequences of these changes impact not only the environment but also affect historical built heritage. In this context, archaeological sites are an emblematic example, constituting a complex, layered palimpsest of historical, cultural values that must be preserved for future generations. It's a legacy, «of fundamental importance to humanity in identifying its cultural and social roots». So reads the Charter for the Protection and Management of the Archaeological Heritage, drafted by ICOMOS in 1990. A «fragile and non-renewable heritage» as it mostly consists of assets in the state of ruins. Constant exposure to natural risk factors, combined with the effects of C.C., increasingly threatens the integrity and authenticity of archaeological sites. In the international research landscape, the scientific community has increasingly emphasized the importance of integrating cultural heritage into C.C. mitigation and adaptation policies. This approach is promoted through a range of instruments, including the UNESCO report and numerous projects, which highlights the need to protect and enhance cultural heritage as a key component of collective identity. In this context, planned conservation emerges as an essential approach to effectively addressing the challenges posed by C.C. This strategy involves the planning of compatible and sustainable interventions grounded in thorough cognitive and diagnostic analysis of archaeological heritage. The goals of the session focus on promoting an active dialogue between parties involved in the protection and management of cultural heritage and international stakeholders. It aims at promoting stronger connections between archaeological research and conservation actions, thereby improving strategies to manage risks and vulnerabilities associated with C.C. The session will discuss applicable methodological guidelines that consider the specific vulnerabilities of archaeological sites to climate-related threats, to be integrated into operational frameworks for cultural heritage management.

CONTRIBUTION ABSTRACTS

980. CLIMATE PATTERNS AND EFFECTS IN EARTHEN ARCHAEOLOGICAL SITES OF EASTERN SPAIN: INSIGHTS FROM A DECADE OF DATA

**Contribution format:** Oral  
**Contribution authors:** Sergio Manzano-Fernández – Camilla Mileto – Fernando Vegas López-Manzanares – Valentina Cristini (PEGASO Research Centre, Universitat Politècnica de València)

Climate change has marked a turning point in the approach to conserving and protecting all types of architecture, although archaeological contexts introduce a set of particularly vulnerable factors, including disuse or the absence of original construction protections. The current unpredictable and evolving scenario caused by extreme climatic events has forced a redefinition of paradigms, leading to a potential acceleration in structural loss and



greater challenges in damage prevention. The scarce preserved earthen architecture of past societies, whose fragility is even more threatened in scenarios of partial collapse and severe climatic affection through desertification, torrential rain or flooding, stands out as one of the most urgent concerns for the elaboration of preventive conservation plans. This paper aims to compile climatic data on rainfall and temperature over the last ten years in three archaeological sites along the Spanish Mediterranean coast with earthen construction remains in varying degrees of intervention and degradation. To achieve this, nearby climatic stations and historical site records have been consulted, in order to track their temporal evolution, reflecting on the methodological limitations of analyzing short data series for a long-term processes. Based on this, an analysis is elaborated reflecting on the maximum and average annual rainfall patterns over time, sometimes preceded —or not— by prolonged drought periods, as well as the variable effects on earthen structures under different conditions.

279. CLIMATE CHANGE AND ARCHEOLOGICAL SITES: THE PORTUGUESE POINT OF VIEW

**Contribution format:** Oral  
**Contribution authors:** Gertrudes Branco – Leonor Rocha (CHAIA/Universidade de Évora)

Climate change is a global problem that requires a concerted response from the international community and appropriate action at the local level, as discussed at the United Nations Climate Change Conference - COP28 - held in the United Arab Emirates at the end of 2023, or integrated into the 2030 Agenda for Sustainable Development (SDG) adopted by all United Nations Member States in 2015. Due to its geographical location, Portugal is one of the European countries most vulnerable to climate change, the effects of which are being felt in the increasing frequency of extreme weather events such as droughts, heat waves, floods and storms. Official data from the Instituto Português do Mar e da Atmosfera (Portuguese Institute for the Sea and Atmosphere) show that there is growing concern about the increasing frequency of meteorological droughts in recent years, some of which have lasted for more than one wet period (autumn and winter) and one dry period (spring and summer) and have affected an increasing percentage of the territory. The 2016/2017 meteorological drought stands out for its severity, an event that worsened significantly at the beginning of autumn (on 31 October, 25% of the territory was in severe drought and 75% in extreme drought), in an unusual way and with damaging consequences for the territory. In this context, we propose to take stock of the impact of climate change on Portugal’s archaeological heritage, which, as a component of the human environment, is competing for space with, for example, agriculture, forestry and the facilities needed to produce renewable energy. These components are undergoing profound changes due to water scarcity, increased fires, increased afforestation and deforestation, and the urgent need to overcome the country’s dependence on fossil fuels.

910. PROBLEMS CAUSED BY CLIMATE CHANGE AND INCREASED RAINFALL ACIDITY AT GREEK ARCHAEOLOGICAL SITES WITHIN HISTORIC CENTRES

**Contribution format:** Oral  
**Contribution authors:** Stefano Gizzi (ICOMOS Italia)

Climate change and increased acidity in rainfall have given rise, in Greece, to a series of initiatives in archaeological areas within (but also close to) historic centres of varying content, some more sympathetic, others less so. Those currently underway at the Acropolis of Athens will be examined (work to consolidate the rock, which was disintegrating and landsliding, and to change the location of the internal road system, which had become muddy due to frequent rainfall, massive additions to the existing roofs to protect the Pinacoteca and Propylaea from acid rain), as well as at Epidaurus and Olympia, with very extensive reintegrations. Mention will also be made of the problems concerning the adaptations of roofs, again for protection against weathering, which have become more and more pronounced in recent years, on the island of Crete by the Italian Mission in Festòs (where Luigi Pernier, in the late 1940s, covered the room that was originally a small workshop with a concrete slab, now totally deteriorated) and by the Archaeological Mission of the Ecole française d’Athènes in Mallia.

346. WEATHERING THE PAST: ASSESSING CLIMATE-INDUCED DETERIORATION OF GREEK MARBLE IN ARCHAEOLOGICAL HERITAGE

**Contribution format:** Oral  
**Contribution authors:** Meilin Lyu (National University of Athens) – Radek Ševčík – Dušan Majtás – Lucie Zárbynická (Institute of Theoretical and Applied Mechanics, the Czech Academy of Sciences)

The accelerating impacts of climate change pose significant threats to archaeological sites, particularly through processes like thermal cycling and freeze-thaw (FT) action. These climatic stresses can induce severe physical deterioration in building stones, challenging the preservation of cultural heritage. This study explores the effects of accelerated thermal cycling and FT cycles on Greek marble—commonly used in historical monuments—to assess their vulnerability under simulated climate conditions. Thermal cycling experiments subjected marble

specimens to controlled dry and wet heating cycles, replicating summer temperature fluctuations observed in Mediterranean climates. Findings indicated that even mild temperature ranges (20–60-90°C) led to microstructural changes, with ultrasonic pulse velocity (UPV) measurements revealing an initial increase in stone density, followed by deterioration during wet cycles. In parallel, the FT experiment evaluated three types of local Greek marble under repeated freeze-thaw conditions, with temperature ranges from -20°C to +20°C. Results demonstrated that micropore expansion and subsequent microcracking were intensified by the presence of moisture and salt crystallization, leading to a notable decline in mechanical strength. These experiments employed a multi-method approach, including optical microscopy, water absorption tests, scanning electron microscopy (SEM), and micro-computed tomography (micro-CT), to assess deterioration from multiple perspectives. By understanding the anisotropic thermal and hygro-thermal behavior of marble, conservationists can make informed decisions to mitigate risks associated with climate-induced deterioration. The findings advocate for real-time monitoring, combined with laboratory simulations, to develop adaptive conservation frameworks that anticipate and address the evolving challenges posed by climate change. The research contributes to a broader discourse on sustainable heritage management, aligning with international efforts to integrate climate resilience into archaeological conservation practices.

731. CLIMATE CHANGE AND CULTURAL HERITAGE: A CASE STUDY FROM KALAPODI SANCTUARY IN CENTRAL GREECE

**Contribution format:** Oral  
**Contribution authors:** Artemios Oikonomou (German Archaeological Institute, Athens | Science and Technology in Archaeology and Culture Research Center | Department of Conservation of Antiquities and Works of Art) – Angelos Sotiropoulos – Penelope Gourgouleti – Themistoklis Bilis (German Archaeological Insitute, Athens)

The Kalapodi archaeological site, situated in present-day Fthiotis, central Greece, features a complex of various temples and surrounding structures. The archaeological site is one of the most significant sanctuaries of ancient Phokis and offers insights into Greek religious traditions and architectural developments. The ruins at Kalapodi site span from the Mycenaean to the Classical periods. Since 2017, the site has been the subject of extensive cultural heritage preservation efforts led by the German Archaeological Institute (DAI). The Kalapodi site is part of the TRIQUETRA program, supported by the EU Horizon Europe research and innovation initiative (GA No. 101094818). Main aim of this European project is the study of the challenges climate change presents to cultural heritage. The TRIQUETRA project focuses on developing a comprehensive methodological framework to protect archaeological sites from environmental threats. A core aspect of the project involves establishing a data-driven assessment platform for accurate risk classification, along with a detailed database of mitigation strategies. This paper aims to collect and assess environmental and material analysis data from Kalapodi site in order to evaluate the effects of climate change so as to develop targeted preservation strategies. Towards this goal the impact of frost on Kalapodi ancient structures will be evaluated and preventive measures to enhance their long-term stability will be implemented. A pilot structure of the monument has been designed and constructed, equipped with various monitoring instruments to analyze environmental impact on both the pilot structure and the historical monument. The insights gained and the methodology applied underscore the significance of integrating scientific research with heritage management to tackle climate-related challenges and safeguard cultural heritage for future generations.

1367. A COLLABORATIVE APPROACH TO SUSTAINABLE INTERVENTIONS AIMED AT SECURING THE FUTURE OF THE BELO BRDO ARCHAEOLOGICAL SITE IN VINČA

**Contribution format:** Oral  
**Contribution authors:** Dubravka Đukanovic (University of Novi Sad, Academy of Arts) – Nenad Tasić (University of Belgrade, Faculty of Philosophy) – Miroslav Kočić (University of Kragujevac, Center for Archaeology Dragoslav Srejskić) – Kristina Penezić (University of Novi Sad, BioSense Institute)

Although the River Danube has been a vital resource for numerous populations along its banks for thousands of years, permanent alterations to its geological and morphological patterns have resulted in significant environmental impacts. As it flows through Serbia, sediment gradually accumulates on the left bank, forming natural levees that promote floodplain inundation while simultaneously eroding the right bank and causing landslides. A notable recent landslide occurred near the loess plateau known as Belo Brdo in the village of Vinča, where a prehistoric, multi-layered archaeological site has been excavated since the early 20th century. Well-contextualised archaeological findings have provided rich evidence of developed agriculture, technological advancements, urban planning, and cultural practices, positioning this site as the type-site for the entire Late Neolithic culture of the Balkans. Despite its undeniable value, part of the site has been irrevocably lost to the River Danube due to erosion, landslides, and weathering. In 2021, the Serbian government established a long-term intervention framework to



safeguard the archaeological site, mitigate the effects of natural processes and human activities, and align with the SDGs. This initiative adopts an interdisciplinary approach, integrating scientific research from various fields. Heritage science establishes principles and serves as a pivotal point for the synthesis of knowledge and practices. The collaborative development of targets, lines of action, and procedures lasted three years and concluded in May 2024. Upon completing the first phase of the Exploration, Protection, and Presentation of the Belo Brdo Archaeological Site in Vinča Project, which aims to protect the site from further landslide erosion, new opportunities have arisen to revitalise this neglected heritage through cultural, educational, scientific, and environmental initiatives. This aligns with a 1980 initiative by the Municipality of Grocka to promote local development, generate public interest, and establish an archaeological park, ensuring that the invaluable cultural heritage is preserved.

551. REMOTE SENSING RESPONSES TO ARCHAEOLOGICAL AND CULTURAL HERITAGE SITES AT RISK BY CLIMATE-RELATED HAZARDS AND DAMAGES

**Contribution format:** Oral  
**Contribution authors:** Pouria Marzban – Benjamin Dücke – Elvira Iacono – Bernhard Fritsch (German Archaeological Institute (DAI))

Long-term climate change and its accompanying extreme weather events, as well as interlinked anthropogenic pressures, are causing significant damage to Archaeological and Cultural Heritage (ACH) sites worldwide. In response, the German Archaeological Institute (Deutsches Archäologisches Institute, DAI), in collaboration with partner organizations, has established the Cultural Heritage Response Unit (CHRU) to facilitate global heritage disaster recovery efforts. The CHRU’s remote sensing and monitoring unit is tasked with providing cost-effective and rapid support for damage assessment and on-site planning through the utilization of multi-source satellite datasets. This contribution categorizes our methodology into three primary components: preventive measures, time-series analysis (monitoring), and rapid response. We present recent case studies that illustrate these approaches, detailing the types of available data, the methods employed, and their application during emergencies. We use a toolbox that we develop in-house, called “KGR Finder”, which allows us to map all the ACH sites within a risk area. Furthermore, we use open data from the EU’s Copernicus Earth observation programme to provide insights about affected areas and continuously improve our methods on a case study basis. This methodical framework leverages advanced remote sensing and Geographic Information Systems (GIS) technologies, supporting the creation of data and tools to strengthen resilience to climate change on the ground and aid the effective preservation of ACH sites.

790. MAPPING THE IMPACT OF THE RECENT DANA ON BUILT AND ARCHAEOLOGICAL VALENCIAN CULTURAL HERITAGE: THE IPAP INITIATIVE

**Contribution format:** Oral  
**Contribution authors:** Carmen Cuenca-García (Departament de Prehistòria, Arqueologia i Història Antiga, Universitat de València | Department of Archaeology and Cultural History, Norwegian University of Science & Technology (NTNU)) – Valeria Martín-Sidro – Centelles-Fullana Maria Lucrècia (Departament de Prehistòria, Arqueologia i Història Antiga, Universitat de València)

The acceleration of climate change, driven by anthropogenic pressures, is contributing to the increased intensity-and, for some experts, frequency- of extreme weather events. One such event was the DANA (Isolated Depression at High Altitude) that struck the Valencian Community and other eastern and southern regions in Spain last October. This catastrophic episode brought a year’s worth of rainfall within just a few hours, resulting in the loss of 232 lives, with three still missing, alongside substantial material damage, including to tangible cultural heritage. Given the unprecedented nature of the event and the uncertain level of damage to built. cultural heritage and archaeological sites, it became crucial to begin mapping and documenting affected assets in order to assess the extent of damage. In response, members of the SENSING IBERIANSCAPES project from the University of Valencia (CIDEXG/2022/55) developed the IPAP initiative. The primary objective of the IPAP is to create a public interactive map documenting damaged cultural assets, using data provided by both citizens and specialists. Through user-friendly GIS tools, the public will be able to visualise the location of protected buildings and archaeological sites in Valencia and register observed damages. Anyone with a smartphone will be able to collaborate by submitting data and photos of damage in their municipality, while also viewing the contributions on the interactive map. A pilot study, currently underway with undergraduate students collecting data in affected areas, has shown promising results. In collaboration with the General Directorate of Heritage of Valencia, we plan to expand the initiative to include broader citizen participation, such as local groups, schools and other stakeholders. The IPAP aims to provide a rapid solution for mapping and documenting the resilience or loss of Valencian cultural assets, fostering public empowerment, and raising awareness of the vulnerability of cultural heritage to climate change.

653. COASTAL ARCHAEOLOGICAL SITES AT RISK: THE CASE STUDY OF THE ROMAN SETTLEMENT OF CAPO COLONNA

**Contribution format:** Oral  
**Contribution authors:** Giuliana Vinciguerra (Scuola Superiore Meridionale)

Archaeological sites are particularly vulnerable to the effects of climate change, as they represent a fragile and non-renewable heritage constantly exposed to environmental risks. Coastal sites face increasing threats due to erosion, extreme weather conditions, and geomorphological instability. In this context, planned conservation emerges as a fundamental strategy to ensure their long-term preservation. The Roman settlement of Capo Colonna, located on the Ionian coast, is an emblematic case study. The site is at high risk due to progressive slope instability and exposure to marine erosion, which endanger both the integrity of the structures and the readability of the archaeological landscape. This contribution proposes a systematic monitoring approach to assess the site’s vulnerabilities and define effective conservation strategies. A combined methodology of photogrammetry, aerial imagery, and terrestrial laser scanning (TLS) will be employed to document ongoing geomorphological changes and structural instabilities. Additionally, periodic terrestrial surveys will provide a multi-temporal analysis to detect evolving patterns of degradation. The integration of GIS-based data analysis will allow for the correlation of environmental variables with structural changes, supporting a predictive approach to site management. The collected data will be integrated into a long-term monitoring framework, supporting preventive conservation actions and risk mitigation measures. By bridging the gap between scientific research and conservation practice, the study aims to establish guidelines for the sustainable management of coastal archaeological heritage. The approach adopted at Capo Colonna can serve as a model for other sites facing similar environmental threats, demonstrating how advanced documentation techniques and interdisciplinary research can contribute to the safeguarding of archaeological heritage in fragile coastal environments.

2432. INSTRUMENTAL INVESTIGATIONS AND THE TIME FACTOR: MONITORING STRATEGIES AND EFFECT PREDICTING IN THE DOMUS OF ARIANNA IN POMPEII

**Contribution format:** Oral  
**Contribution authors:** Sara Iaccarino – Ersilia Fiore – Luigi Cappelli (University of Naples Federico II)

This contribution explores the theme of monitoring in the restoration of archaeological sites, developing methodologies to manage risks and vulnerabilities associated with this heritage. Monitoring is essential for assessing and mitigating risk factors and climate change vulnerabilities, particularly in multi-risk environments like the archaeological parks of the Vesuvius area. Drawing on research experiences conducted in Archaeological Park of Pompeii, specifically on the Domus of Arianna (Regio VII, Insula IV), we propose a methodological approach that views monitoring as a continuous process integral to all phases of restoration, from knowledge acquisition to intervention planning and post-intervention evaluation. Initially, monitoring serves as a critical diagnostic tool for informing restoration decisions before interventions take place (Ex ante). During the restoration, it facilitates scheduled maintenance and functions as a dynamic alert system (In itinere), allowing for real-time adjustments in response to new information or unexpected challenges. Following the completion of restoration, monitoring is vital for evaluating the effectiveness of the decisions made throughout the process (Ex post). Focusing on “in itinere” monitoring, we implemented a photo monitoring process enhanced by AI, paired with a diagnostic survey of the Domus of Arianna’s archaeological evidence, particularly fragile elements like frescoes, mosaics, and columns. “Ex post” monitoring is particularly concerned with predicting potential effects from environmental risk factors, utilizing data gathered during all the knowledge phases. This phase is crucial for establishing regular maintenance practices after the restoration is concluded, also in the sense of planned conservation. In this sense, a specific focus on the ex-post analysis has been conducted on the floor mosaics, actually interested by maintenance process.

469. MEASURES TO PROTECT FRIESACK 4 (BRANDENBURG STATE, GERMANY) - SAVING ONE OF THE MOST IMPORTANT MESOLITHIC SITES IN EUROPE

**Contribution format:** Oral  
**Contribution authors:** Deborah Schulz – Andreas Kotula (Brandenburg State Authorities for Heritage Management, State Museum Archaeology)

Sites with wet soil preservation are particularly valuable archaeological archives. In constantly wet sediments even delicate organic materials can be excellently preserved for thousands of years. A particularly impressive example is the Stone Age site Friesack 4 (Havelland district). In the 1980s, almost 300 square meters of wet soil area were investigated and more than 130,000 flint artefacts, over 800 bone and antler artefacts and more than 130 wooden artefacts were recovered. In addition, there are over 3,000 fragments of cords, ropes and nets made of bast. These finds make Friesack 4 one of the most important Mesolithic sites in Europe. The find potential of Friesack 4 is still high today, especially since parts of the rich find layers have remained in the ground. Due to



ongoing melioration and climate change with increasingly frequent dry and warm environmental conditions, there is a need for action for this important site, as drying out gradually leads to the decomposition of the organic artefacts. In order to preserve these unique cultural treasures, we have carried out initial field work to evaluate the present condition. Comparing recent water levels with the known stratigraphy of the site showed that almost the entire find layer had already dried out temporarily and is therefore at long-term risk. In this talk we present investigations on the preservation of the site and discuss possible measures to save the organic Stone Age materials from the site. The aim is to work with various institutions from the areas of moorland protection, renaturation, water maintenance and agriculture. On a more regional scale, our goal is to preserve sites in the lowland areas of the Rhin and Havelland Luch in a permanently wet environment.

**1125. LEARNING TO MANAGE FRAGILITY: PREVENTIVE AND PROGRAMMED MAINTENANCE/ CONSERVATION PLANS FOR THE ARCHAEOLOGICAL SITES OF CUPRA MARITTIMA, FALERONE, AND MONTE RINALDO**

**Contribution format:** Oral  
**Contribution authors:** Andrea Ugolini (Alma Mater Studiorum - University of Bologna) – Giovanni Issini (Soprintendenza archeologia belle arti e paesaggio per le province di Ascoli Piceno, Fermo e Macerata) – Enrico Giorgi (Alma Mater Studiorum - University of Bologna) – Francesca Bindelli (Sapienza Università di Roma) – Mauro Saracco (Università di Macerata)

Every built artifact, as Giovanni Urbani pointed out as early as the late 1970s (especially if archaeological, we would add), is a complex object primarily relating to its surrounding environment. Awareness of this requires attention that is neither generic nor univocal, but based on a dynamic, ecological, and sustainable vision of reality. Consequently, a necessary paradigm shift at the strategic and operational level is required, moving away from episodic interventions in favor of periodic and systemic ones. The only viable way to maximize the longevity of archaeological artifacts is to manage their fragilities through repeated, conscious acts of care, which must be systematically planned. The essay provides an overview of the study and conservation activities carried out by the Superintendence of Archaeology, Fine Arts, and Landscape (SABAP) for the provinces of Ascoli Piceno, Fermo, and Macerata, in collaboration with the Universities of Bologna and Macerata, concerning the archaeological sites of Cupra Marittima, Falerone, and Monte Rinaldo. These Roman sites have differing histories and material consistencies: some have been excavated and restored in the last century, while others are still undergoing study and enhancement. The sites feature distinct landscape and environmental contexts, and varying conservation efforts have been carried out by their respective owners and managers. The preventive and programmed maintenance/conservation plans developed had to address the complex dynamics of these sites, their nature and contexts, the intrinsic and induced vulnerabilities of the ruins, and the challenges posed by climate change, which, as is well known, increase the risks to archaeological heritage. The contribution also reflects on the difficulties encountered in drafting and managing these plans, with the aim of improving their effectiveness, particularly regarding the programming of resources for the care of these sites. Acknowledgments: This project has received funding from the European Union’s Horizon Europe programme under grant agreement No. 101094978. RescueME Project: <https://resilientculturallandscapes.eu/about/project>.

**1120. CLIMATE CHANGE AND DISASTER RISK MANAGEMENT IN ARCHAEOLOGICAL CONTEXTS. A PROTOCOL FOR EMERGENCY RESPONSE AMID EXTREME WEATHER EVENTS.**

**Contribution format:** Oral  
**Contribution authors:** Eleonora Melandri (Alma Mater Studiorum - University of Bologna)

Climate change is one of the most urgent challenges of our time, reshaping the contexts in which heritage assets were established and have evolved through time. Rising temperatures, prolonged droughts, rising sea levels, and increasingly frequent and destructive extreme events pose significant threats to cultural heritage, of which archaeological one is among the most vulnerable (ICOMOS, 2019). Addressing these challenges requires an urgent paradigm shift in current heritage management practices to proactively address the uncertainties associated with intense meteorological events. This necessitates a stronger emphasis on systematic and continuous conservation efforts to reduce existing vulnerabilities while integrating new strategic awareness to face this new reality. Effectively addressing these challenges requires a comprehensive understanding of both current risks and projected future changes, ensuring that available knowledge is incorporated into existing risk management practices leveraging all available resources. By doing so, emergency situations can be managed more efficiently and systematically, minimizing unplanned responses before and after major weather events. This study examines three Italian archaeological sites previously impacted by intense rainfall events — the archaeological parks of Baratti-Populonia (Tuscany) and Suasa (Marche), along with the archaeological area of Claterna (Emilia-Romagna). Through these case studies, it underscores the critical role of disaster risk management strategies in safeguarding archaeological heritage from severe meteorological events. In this context, it aims to present a structured intervention

protocol for both pre- and post-emergency phases, emphasizing the importance of proactive planning to minimize the impact on ancient structures. Acknowledgments This project has received funding from the European Union’s Horizon Europe programme under grant agreement No. 101094978. RescueME Project: <https://resilientculturallandscapes.eu/about/project>

**1108. MITIGATING RISKS THROUGH HERITAGE: CONSERVATION AND SUSTAINABLE REUSE FOR THE ROMAN THEATRE OF NEAPOLIS, ITALY**

**Contribution format:** Oral  
**Contribution authors:** Andrea Pane (University of Naples Federico II) – Damiana Treccozzi (Scuola Superiore Meridionale) – Salvatore Pagano – Elisabetta Pedicini (University of Naples Federico II)

Climate change mitigation, a current issue in contemporary society, requires a radical change in the approach to archaeological heritage. Nowadays, there have been few concrete actions and some international organizations such as UNESCO and ICOMOS have recently taken a more specific interest in this matter. In response to ongoing climatic events Naples, a densely built city, offers limited open and permeable spaces. In this regard, the article aims at designing interventions capable of responding to the most widespread climatic events, thus strengthening their resilience. This paper focuses on the roman theatre of Neapolis, an archaeological site from the 1st-2nd century AD, that represents a unicum in the historic center. Over the centuries the insula’s stratifications have concentrated on the limits of the lot, preserving the internal courtyard that hosts the cavea, which benefits from shaded areas and natural cooling due to surrounding tall buildings. This research, developed as part of a master’s degree thesis in Architectural Conservation at the University of Naples Federico II, suggests design solutions based on a conscious conservation approach while addressing new needs brought by climate change. Starting from the ongoing UNESCO project, a few demolitions are proposed to increase preserved parts and reduce waste. Firstly, a reversible staircase compatible with the existing structure is added to reach the archaeological level. To concretely suit to climate change challenges, the project includes movable roof systems meant to mitigate heat islands and protect archaeological ruins from further degradation. Hidden rainwater harvesting systems in the courtyard are conceived to reuse it as greywater in the interior spaces of the buildings. These solutions envision the theater as part of climate shelters’ network within the historic center and show how the needs, dictated by climate change, can enhance the resilience of cultural heritage, guaranteeing its transmission to the future.

**1031. ROMAN THEATRE OF BENEVENTO: CONSERVATION AND REUSE OF AUXILIARY SPACES FOR CLIMATE ADAPTATION**

**Contribution format:** Oral  
**Contribution authors:** Francesca Spacagna – Lorenzo Capobianco – Francesca Castanò – Luigi Maffei (Università degli Studi della Campania “Luigi Vanvitelli”)

The interdisciplinary research aims to explore the potential of classical theater architecture, with reference to the Roman Theater of Benevento. Built between the 1st and 2nd centuries AD, it reflects the Augustan theater model and today serves as a layered cultural palimpsest and a study laboratory for the integration of innovative technologies for the conservation and reuse of auxiliary spaces. The theater features a semicircular cavea, divided into three stacked orders of arches, and a monumental scene, having withstood the Gothic War, World War II, and four earthquakes. Located near the cardo-maximus, it is now incorporated into the urban fabric, losing the perceptual and spatial isolation that once enhanced its symbolic and architectural value. Its preservation, extending to all the service spaces that define it, depends on external factors such as environmental variations and microclimatic conditions, as well as factors related to materials and construction techniques. The research will aim to identify models that combine heritage protection with the need for urban spaces that contribute to the well-being of the community by utilizing auxiliary spaces. Innovative solutions will be presented that allow, while respecting preservation regulations, the rethinking of these spaces as potential areas for protection and urban regeneration, capable of mitigating the effects of climate change and promoting a usable microenvironment. In this context, at the Theater of Benevento, which is monitored through measurements on climatic effects and thermal comfort, thermal variables will be recorded and compared with pre-existing data from the Istat database. The innovation lies in reconsidering the theater and auxiliary spaces as dynamic and adaptive assets, integrable into conservation and sustainable development policies, strengthening the dialogue between archaeology, architecture, and engineering, and contributing to urban regeneration in response to climate change.

**1230. PRESERVING MUTATIONS AS A SUSTAINABLE CONSERVATION STRATEGY: ARCHAEOLOGICAL LANDSCAPES AND AGRICULTURAL PRODUCTION IN SOME ANCIENT MEDITERRANEAN TURKISH CITIES**

**Contribution format:** Oral  
**Contribution authors:** Riccardo Rudiero – Emanuele Romeo (Politecnico di Torino, Dipartimento Architettura e Design (DAD))



For centuries, the climate changes that have affected the countries of the Mediterranean Basin have modified the habits of the native populations, stimulating or slowing down their economic and commercial activities. These transformations have changed the coastal landscapes, urban centres, and architecture that have often undergone periods of sudden abandonment. The reasons are mainly due to the advance or retreat of coastlines: in the first case, rising sea levels have submerged residential settlements and production centres, forcing the population to rebuild homes and cities inland; in the second case, the silting up of natural inlets and ports, with the advance of coastal strips caused by the lowering of the water level, led to the abandonment or decrease in commercial exchanges and economic activities. Phenomena of this type characterised various Turkish cities facing the Mediterranean Sea. The evidence of this can still be seen, for example, in the silting up of the bay of Priene, which became agricultural land, or in the remains of the port of Miletus. Similarly, Christian architecture and Islamic quarters were built in Ephesus, whose harbour basin was already abandoned in the 8th century. The same happened in Elaiussa Sebaste, where the retreat of the waters rendered the two ports of the Romano-Byzantine city unusable, having been used for a long time for cultivation activities. Starting from these dynamics and considering how the coexistence of agricultural and productive activities within the archaeological areas allows for the subsistence of the local populations and also avoids the phenomenon of desertification, the contribution proposes strategies for the conservation of these traces due to the centuries-old climate changes which, together with seismic phenomena, have modified an archaeological landscape that deserves to be adequately enhanced.

**741. UNDERSTANDING CHANGE: CONSERVING BIODIVERSITY IN THE EASTERN ADRIATIC’S THEATRES AND AMPHITHEATRES BETWEEN PROTECTION AND USE**

**Contribution format:** Oral  
**Contribution authors:** Fabio Ambrogio (Politecnico di Torino)

The Balkan territory along the eastern Adriatic coast preserves a significant historical testimony from the classical era relating to the heritage of theatres and amphitheatres of the ancient Roman Provinces. A set of buildings, often deriving from the Greek age, is currently preserved in present-day Croatia and Albania. The structures analysed here have a significant relationship with plant material, whose species have often been maintained over time, overcoming the difficulties imposed by climate change. Neglect, abandonment and protection of these areas contribute to conserving the different forms of biodiversity that persist among the ruins. This natural heritage, in the face of a climate crisis, can contribute to the improvement of visitor routes, the reduction of heat islands, the development of reforestation policies and the implementation of broader strategies for the enhancement of the territories, combining archaeological and botanical heritage. The analysis of the current archaeological contexts allows us to assess the state of conservation of the places, highlight the vulnerabilities of the sites, analyse the interventions carried out and monitor the enhancement policies in place, establishing operational methods for the promotion of good practices aimed at the protection of the archaeological and naturalistic landscape. Therefore, the contribution proposes the analysis of the state of the art relating to the landscape conditions of the places, with particular reference to the risks and opportunities posed by climate change. An operation aimed at evaluating monitoring and solutions for archaeological contexts, with specific reference to the development of biodiversity, by the needs of protection and archaeological use. Analysing the possible threats and opportunities of the archaeological heritage concerning climate issues can raise awareness in the local community, establishing fruitful scientific collaborations with research institutions and government bodies, with a view to growth and sustainable development.

**1593. ARCHAEOLOGICAL HERITAGE AND CLIMATE CHANGE: PREVENTIVE CONSERVATION STRATEGIES FOR THE QHAPAQ ÑAM IN PERU**

**Contribution format:** Oral  
**Contribution authors:** Roberto Villalobos (Patrimonio Architetonico. Politecnico di Torino)

The Qhapaq Ñam (Camino del Inca) originated as a road system of the Tahuantinsuyo Empire, serving as an infrastructure for communication across territorial areas. It also included a widespread architectural system of exchange and resting structures for the chasquis, the imperial messengers. This system, which over time has undergone numerous adaptations to climate conditions, is now found within six South American countries: Ecuador, Colombia, Peru, Bolivia, Chile, and Argentina. Specifically, the section within Peru represents and interesting case study to analyze the critical issues and propose solutions aimed at protecting this heritage in the face of climate change affecting the entire region. Currently, the conservation and enhancement project for this territory involves not only the road itself but also the entire archaeological heritage distributed along the route, including a landscape of scattered ruins that has evolved over time for the benefit of the population that have inhabited it. Although the main approach consists in preserve the existing structure, over time, other strategies have been adopted to reduce the consequences of climate change on this cultural heritage. For these reasons, the contribution proposes analyzing the various preventive actions implemented to mitigate the risks posed by natural disasters (flooding, landslides, heavy rainfall, and temperature fluctuations) that the Qhapaq Ñam faces daily.

These events not only deteriorate the ancient material but also interfere with the economic and social activities of the more than three hundred local communities that still use this infrastructure and the surrounding rural areas, primarily used for agricultural cultivation. At the same time, the analysis also examines strategies for managing theses territories by applying techniques and knowledge that have been employed since the pre-colonial era to address such climate changes, which could, even today, contribute to resolving the vulnerabilities of the land.

**192 WATER IN THE CITY. MULTIDISCIPLINARY APPROACHES TO URBAN WATER MANAGEMENT**

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Regular session  
**Session keywords:** Water, Urbanism, Multidisciplinarity, Cities,  
**Session organisers:** Nikolai Paukkonen – Tia Niemelä (University of Helsinki) – Marcus Sink (Swedish Institute at Athens)

**SESSION ABSTRACT**

Water has been a primary condition for organic life since its very beginning. Starting from the earliest stages of urbanization, managing urban water—whether ensuring its availability or mitigating its excess—has necessitated a range of innovative solutions. These efforts have resulted in a variety of structural, architectural and technological developments, from extensive systems such as aqueducts, tunnels, and cisterns to more subtle patterns and design choices that often go unnoticed. Archaeology offers a unique lens through which these systems can be directly examined, revealing the physical remnants of historical water management strategies. Hydrological phenomena in urban contexts can also be explored using various interdisciplinary methods. These include digital modeling of drainage systems, paleoclimatological studies, and analyses of water accessibility in relation to settlement patterns, in addition to many other approaches. This session invites researchers from diverse disciplines to present studies on water management in urban settings across different regions and time periods—from the dawn of urbanization to the modern era. We welcome contributions such as descriptions of fieldwork projects, large-scale diachronic analyses, innovative methodological applications, and theoretical discussions. Our aim is to foster a comprehensive interdisciplinary dialogue that highlights the multifaceted ways water has been managed in cities throughout the history of urban life.

**CONTRIBUTION ABSTRACTS**

**1032. ABANDONMENT AS RESILIENCE: A CASE STUDY FROM OLYMPOS, LYCIA**

**Contribution format:** Oral  
**Contribution authors:** Catherine Keane (Universität Tübingen)

This paper focuses on late antique transformations of water management in Olympos, Lycia. Situated in a steep river valley on the coast, Olympos is a well-preserved site that experienced earthquakes in the 6th century with later phases of abandonment. Throughout these late antique phases, various renegotiations of water management are visible archaeologically, which correlate to a rising water table after the earthquake. At numerous churches in the city, water was also incorporated with pipes and basins for monumental purposes in later building phases. This paper analyses the transformations of the city after the earthquake, the changes to religious monuments, throughout the city’s abandonment. By applying paleoenvironmental data from nearby cave and lake records alongside a reconsideration of architectural phases, it is possible to discuss the site’s eventual abandonment. With aspects of complex adaptive systems from resilience theory approaches, the question of abandonment as a form of resilience will be presented.

**1094. WATER AND POWER: WATER FLOWING FEATURES IN THE ARCHITECTURE OF HERODES ATTICUS**

**Contribution format:** Oral  
**Contribution authors:** Marcus Sink (Swedish Institute at Athens)

Herodes Atticus, one of the wealthiest persons in Roman Greece, was responsible for the construction of a wide array of different buildings, both private and public, on the Balkan and the Italian peninsulas as well as in Asia Minor. This presentation will examine a series of architectural structures, from the second century AD, which are related to Herodes Atticus. This investigation will demonstrate a possible preference for running water as an incorporated element in Herodes’ building programs. While this is something that has been noticed for specific sites, e.g at his villa at Eva/Loukoús, it has never been studied as a recurring phenomenon in the architecture of Herodes. Why Herodes started adding water flowing features to his architecture is still unclear. It has previously



been suggested that he was inspired by Hadrian’s building projects, such as Hadrian’s villa at Tivoli. However, it might also be that he inherited the art from his father who, according to Philostratos, constructed a hydrological supply system for Alexandria Troas in Asia Minor. To demonstrate Herodes’ presumed preference of water related elements, material from several different sites will be offered as examples in order to provide for new interpretations of architectural structures with unclear functions.

2156. **”ΑΡΙΣΤΟΝ ΜΕΝ “ΥΔΩΡ: URBAN PLANNING AND WATER IN AKRAGAS AND METAPONTO**

**Contribution format:** Oral  
**Contribution authors:** Seraphina Vasilodimitrakis-Hart (Aristotle University of Thessaloniki)

This paper examines the water resource management in two Greek colonies in Magna Graecia, Akragas and Metaponto, and the relationship between resource management and political regimes. It asks how similar ancient urban theory was to the practical reality, and if different forms of government made different provisions for water management. By outlining urban and health theories found in the works of ancient theorists, it debunks the idea that Hippodamos was the inventor of grid planning, while introducing the concept of ‘total’ city planning. The focus of Classical scholarship on Athens necessitates discussions of several Athenian water systems and how resource management changed or continued through different governments in Athens as a point of comparison for Akragas and Metaponto. This is constructed through literary analysis and introduces the controversial Southeast Fountain House, with an in-depth consideration of the fountain’s naming and dating problems. Akragas and Metaponto are the two case studies examined in this paper. They are examined by an exploration of the hydrogeology at the two sites, with an introduction to the hydrological phenomenon of karst activity, and discussion of their unique water features—the kolymbethra at Akragas and the canals in the chora of Metaponto—connects the deliberate planning that occurred in both cities to Hippodamos and the urban theorists. Finally, the role of tyrants and democracies in water management is examined through the lens of these two cities with comparison to Athens. Regardless of authorship, water resource management and water systems are necessary for any city, and so most tyrannical water infrastructure continued to be used and improved upon under different governments. Even under tyranny water management is a provision of the state and is engaged with and managed by the citizens of the city.

926. **EPIGRAPHY AND WATER MANAGEMENT IN THE EASTERN MEDITERRANEAN FROM THE ROMAN IMPERIAL PERIOD TO THE OTTOMAN ONE: SOME CASE STUDIES**

**Contribution format:** Oral  
**Contribution authors:** Giovanni Salmeri (University of Pisa)

Inscriptions offer some important information on water management in the Mediterranean world. In this presentation I shall focus on the Eastern Mediterranean from the Roman Imperial period to the Ottoman one, adopting a comparative approach, and trying to define – through the analysis of half a dozen of inscriptions from Greece and Turkey – which were the limits and forms of private and public intervention in the water management of the cities. A special attention will be paid both to the evergetic behaviour quite often characterizing the construction of aqueducts and fountains and to the role played by the latter in the urban setting. Within the same perspective will also be taken into consideration the reliefs accompanying inscriptions on the walls of some fountains. Finally, the range of symbolic values attached to water in pre-industrial societies, touching also the religious sphere, and shared between ancient and early modern times, will be analyzed.

1511. **BENEATH OTTOMAN TIMIȘOARA: ARCHAEOLOGICAL PERSPECTIVES ON WATER SUPPLY AND MANAGEMENT**

**Contribution format:** Oral  
**Contribution authors:** Bogdan Craiovan (National Museum of Banat | Center of Interdisciplinary Research on Movable and Immoveable Archaeological Heritage “ArheoTim”) – Andrei Stavila – Dorel Micle (West University of Timisoara | Center of Interdisciplinary Research on Movable and Immoveable Archaeological Heritage “ArheoTim”)

Water is and will always remain a vital element in the economy and daily life of a village, settlement, or urban center, whether we are talking about prehistoric times or the modern era. This is especially true in the late medieval to the early modern period when cities and urban centers began to develop even faster than before. The population grew on a yearly basis, thus requiring a steady supply of water and a stable, functioning system to bring water into the city and remove the used water. This presentation explores the water management system of Ottoman Timișoara (late 16th–mid-17th century) through archaeological discoveries made in Piața Libertății during excavations in 2013–2014. The investigations uncovered several sections of an aqueduct, fragments of terracotta pipes, and a segment of a sewerage system, providing valuable insights into the city’s infrastructure. These structures likely played a crucial role in supplying water to key urban areas and public buildings, such as

the nearby hammam. The analysis of construction techniques, material use, and spatial distribution sheds light on the ways in which water was integrated into the daily life of the city. By examining these elements, this study contributes to a broader understanding of urban planning and resource management in the Ottoman period.

198. **THE MANAGEMENT OF EXCESS WATER IN THE STREETS OF MEDIEVAL LÜBECK**

**Contribution format:** Oral  
**Contribution authors:** Rebecca Pfaff (Otto-Friedrich-Universität Bamberg | ZKFL (Centre for Cultural Research Lübeck))

The supply of drinking and process water to the urban population was of great importance. As is also the case for Lübeck, one of the oldest hanseatic cities in Northern Germany. Moreover, the management of domestic wastewater and excess water resulting from precipitation within the densely populated cities of the Middle Ages also constituted an infrastructural problem for which a solution had to be found. Using an interdisciplinary approach that combines archaeological, historiographical and bioscientific analyses, my doctoral thesis focuses on the medieval infrastructure concealed within the streets of Lübeck. The focus is directed towards structures that still belong to critical sectors of infrastructure today. These include the water supply and waste disposal systems as well as the street surfaces. The paper focuses on the management of excess water in the streets of Lübeck. The dense development on properties prevented natural drainage and necessitated the strategic diversion of water to prevent its ingress into buildings. As urban development progressed, the disposal system shifted more and more to the streets. This resulted in the establishment of a complex, interconnected drainage system comprising of a variety of drainage methods that were well adapted to the environment. The complexity of the system suggests that the plots were meticulously planned, with the infrastructure being designed from the outset by a municipal or feudal authority. My paper explores the manner in which the city regulated its infrastructure in interaction with its citizens. The primary source of data for this study is derived from large-scale excavations in the area of the city’s so-called “founding quarter”. The aim is to compare the “founding quarter”, which was dominated by wealthy merchants, with other areas of the city, which were mainly populated by craftsmen.

2340. **THE MEDIEVAL WATER SUPPLY SYSTEM OF TALLINN**

**Contribution format:** Oral  
**Contribution authors:** Villu Kadakas (Tallinn University)

Almost nothing is known about medieval or Early Modern water supply systems of Estonian towns, except Tallinn. Smaller inland towns next to natural streams with abundant water probably did not need a complicated system. Tallinn as a coastal town was not able to supply itself with natural fresh water sources and eventually, by the 15th century built an artificial system. It included a 4 km long subterranean aqueduct, which brought water from a lake, situated 20 m higher than the Old Town, to the moat; a system of water mills on the moat, timber pipelines under the streets which brought water to public wells on the street. This system apparently functioned for a very long period: from its original construction in the 15th century until the 1860s. It is rather well reflected also in the surviving written records in the city archives. Throughout the last century, elements of this water system have been discovered both from under the streets of the Old Town and suburban areas. The aim of the paper is to give a short overview of what is known of this water system, as well as of the research problems and possibilities. The apparently very clear description of the water system is rather problematic when one takes a closer look on the data. The built elements of the system have been mostly discovered by history enthusiasts, before professional archaeology; the documentation is rather limited. The system has been described mostly based on the elements which functioned in the middle of the 19th century. How much of the documented water system elements really survived from the original system? Was the 19th century system simply a copy of the initial one or had there been changes extent and technology? Is there still enough preserved underground for further studies?

323. **WATER MANAGEMENT AND FIRE SAFETY IN EARLY MODERN TURKU, FINLAND**

**Contribution format:** Oral  
**Contribution authors:** Tia Niemelä (University of Helsinki) – Kari Uotila (University of Helsinki | University of Turku | Muuritutkimus Oy)

In the early modern town (in this case, from AD 1650 to the early 19th century), water was a necessity of life not only because of victuals but also in the case of fire accidents. The town of Turku was funded in the medieval period, and in early modern times, it was the most important town of current Finland, which was part of the Swedish Kingdom until 1809. During this period, the town was developing, and stone buildings became more common. However, Turku was still mostly a wooden town in the early modern period and was thus influenced by many fires. As in other European towns, fire insurances became more popular, and The General Fire Insurance Company in Sweden was founded in 1782. Muuritutkimus Oy conducted archaeological excavations at the Market Square of Turku between 2018 and 2022, and over 20 early modern town plots were investigated. Six plot owners



in this area had fire insurance for their property. These insurances date to between 1794 and 1821. Fire insurances provides valuable data on buildings in the plots, including building materials and structures, windows, interiors, and yards. Furthermore, there is information on wells and firefighting equipment, such as fire escapes and buckets. This paper aims to approach water management in early modern town with two different source materials: archaeology and historical written sources – fire insurances. Both materials provide information on wells and underline the importance of access to water. The main questions are where the wells are located in the town plots researched and what kind of equipment inhabitants owned in case of the fire?

2011. THE GEOMORPHOLOGICAL EVOLUTION OF A FORGOTTEN BRANCH OF THE RIVER SENNE IN BRUSSELS

**Contribution format:** Oral  
**Contribution authors:** Dries Vergouwen (Vrije Universiteit Brussel | urban.brussels) – Ralf Vandam (Vrije Universiteit Brussel) – Ann Degraeve – Marc Meganck – Sylvianne Modrie – Stephan Van Bellingen (urban.brussels) – Cristiano Nicosia (University of Padova) – Yannick Devos (Vrije Universiteit Brussel)

The 2015 rescue excavation at the Tours & Taxis site in Brussels, conducted by the Department of Archaeological Heritage of the Brussels-Capital Region, revealed surprising findings. Among them was the discovery of an undocumented branch of the Senne River, just north of the historical center of Brussels. This river arm has been studied extensively in terms of archaeology, archaeozoology, micromorphology and macro-botany. This paper reconstructs the geomorphological history of the meander, tracing its initial formation, periods of activity and dormancy, and eventual disappearance, offering new insights into the dynamic relationship between natural and human-induced changes in this urban landscape. The methodology of the fieldwork included making a general site description, profile description and documentation, describing the soil characteristics and features associated with archaeological structures and/or layers. A total of 21 soil profiles have been studied. The geomorphological evolution of this branch is characterized by 13 distinct phases, ranging from the Quaternary alluvium that filled the valley until the entire site got covered by alluvium and backfill before 1550.

1713. BEYOND THE TEXTS: ANALYZING ROME’S WATER NETWORK THROUGH DIGITAL ARCHAEOLOGY

**Contribution format:** Oral  
**Contribution authors:** Maria Elisa Amadasi (Scuola Normale Superiore di Pisa)

Water infrastructure has played a crucial role in the development of urban societies since ancient times, significantly improving the quality of life. In particular, the continuous advancements in water supply systems became a hallmark of Roman civilization and identity. The ERC-funded project IN-ROME examines urban structures and interactions in Rome and its surroundings, covering the period from the 1st century BCE to the 3rd century CE. Its innovative goal is to translate topographical data into socio-cultural insights, offering a deeper understanding of the city’s social dynamics beyond what is found in literary sources. A key focus of this project is the holistic study of water infrastructure. By analysing ancient and antiquarian texts, archival records, cartography, and the latest research on Rome and its hinterland, various water installations can be identified and mapped in a GIS system. This interdisciplinary method enables a more comprehensive examination of Rome’s water infrastructure, revealing its connections with urban society and the surrounding landscape. The detailed picture that emerges from this study provides valuable insights into the exploitation of rural areas, the management of water resources, and the use of both urban and suburban spaces.

307. WATER IN THE CITY: EPIGRAPHICAL EVIDENCE FROM GREEK POLEIS OF THE HELLENISTIC AND EARLY IMPERIAL PERIODS

**Contribution format:** Oral  
**Contribution authors:** Antiopi Argyriou (National and Kapodistrian University of Athens | Center for Hellenic Studies Harvard University Summer Fellow 2024-25)

Water was essential for the life of the ancient Greek poleis. The abundance of inscriptions which is preserved from the Hellenistic and the early Imperial periods attests to the importance of water management for urban life. Numerous inscriptions of various types (honorific decrees, dedications, laws, contracts etc.) shed light on the strategies employed by city officials (such as the epimeletes of the fountains, the ergepistates, and the hydrophoros) who facilitated the flow of abundant and clean water in the cities. The epigraphical evidence reveals that cities were particularly concerned with the availability of water for urban populations. Public inscriptions from various regions offer insights into how the cities managed water uses in urban contexts (gymnasia, sanctuaries etc.), regulated the use of public fountains, and contracted the restoration of fountains and baths. The inscribed laws from the poleis of Priene and Carthaea in Ceos, dating from the 3rd c. BC, are two illuminating examples that offer much detail about the use of water. Dedications of fountains and aqueducts by generous civic

benefactors, including Roman emperors, also convey the high priority of sufficient and clean water, which was not to be excessively or inappropriately used, in Hellenistic and early Imperial Greek poleis.

1733. WATER MANAGEMENT AND URBAN DEVELOPMENT IN FALERII VETERES: THE CASE OF VIGNALE

**Contribution format:** Oral  
**Contribution authors:** Omar Scarone (Università degli Studi di Pavia) – Filippo Materazzi (Sapienza Università di Roma)

Water infrastructure played a crucial role in the urban development of the pre-roman city of Falerii (Civita Castellana, VT, Italy), particularly during the Archaic period. The excavation at Vignale (Sapienza Università di Roma, teaching of Archaeology of pre-Roman Italy) has unveiled a complex system of cunicoli, wells, and cisterns, shedding new light on how the city managed water resources. This paper examines how the development of this hydraulic infrastructure reflects broader socio-political transformations during the 6th and 5th centuries BCE. Drawing on both archaeological and archival data, the research demonstrates a structured approach to water management, indicative of coordinated urban planning. The analyzed cisterns, including one with a capacity exceeding 1,000 cubic meters, attest a sophisticated understanding of water conservation; the presence of multiple cuniculi suggests a deliberate effort to regulate water flow, mitigating seasonal variations and ensuring a consistent supply. Furthermore, comparisons with contemporary hydraulic systems in Etruria and Magna Graecia underscore the interconnectedness of water management strategies across the Mediterranean world. By integrating digital modeling, archival research, and archaeological fieldwork, this study highlights the central role of water infrastructure in shaping urban landscapes. The findings contribute to wider discussions on ancient urbanism, proving how water management functioned not only as a practical necessity but also as an expression of political power in early cities.

106. URBAN AND NATURAL WATER: THE HYDROLOGICAL CYCLE OF A POMPEIIAN HOUSEHOLD

**Contribution format:** Oral  
**Contribution authors:** Nikolai Paukkonen (University of Helsinki | Institutum Romanum Finlandiae)

In urban environments, the supply of clean water and the management of wastewater have posed logistical challenges to human societies throughout the history of urbanization. Pompeii provides a unique lens through which to explore the sophisticated and multi-layered approaches of Roman water management, encompassing features such as baths, latrinae, aqueducts, fountains, and cisterns. The house of Trebius Valens, located in regio III, presents a rich but compact array of water-related installations, making it an ideal case study for understanding these systems. This presentation investigates the hydrological cycle within this household, analyzing its infrastructure and practices to illuminate broader Roman perspectives on water. By focusing on this micro-scale context, I aim to reveal the implicit and explicit roles and meanings that water held in Roman daily life, as well as its connection to nature and urban functionality. Ultimately, this study contributes to a deeper understanding of how water shaped Roman urbanism and the cultural significance ascribed to it.

2447. EXPLOITATION OF GROUNDWATER ON THE CISPIO AND VIMINAL HILLS IN ROME

**Contribution format:** Oral  
**Contribution authors:** Fabiola De Rossi (Università di Sassari | Pontificio Istituto di Archeologia Cristiana)

This study aims to shed light on the exploitation of soil for groundwater extraction in the urban area of Rome, with a particular focus on the Cispio and Viminale area. The area was traversed by the Spinon River, which channeled water from the springs and flowed between the Esquiline, Viminale, and Quirinal hills. From a geological perspective, the terrain was predominantly composed of lithoid tuffs and pozzolanic deposits. These characteristics appear to have facilitated the exploitation of both the soil—through tunnels for material extraction—and the groundwater, via tunnel-cistern systems, wells, and storage reservoirs. This contribution presents preliminary data from an ongoing doctoral research project, which outlines a general framework of infrastructural interventions primarily aimed at water collection in this urban sector. The available data are largely derived from excavations conducted in the late 19th and early 20th centuries. Despite their fragmentary nature, these findings warrant recontextualization and comparison with examples uncovered in recent stratigraphic excavations within the study area. The final framework aims to provide an overview of contextualized findings that may offer insights into construction techniques, periods of use, and the decommissioning of the facilities.

286. SURVEYS ON HISTORICAL WATER SUPPLY OF İSTANBUL AND ARCHAEOMETRIC APPROACHES

**Contribution format:** Oral  
**Contribution authors:** Çigdem Özkan Aygün (İstanbul Technical University)

Archaeological surveys regarding the historical water supply of İstanbul have been conducted by the author since



2005. For a recent interdisciplinary research related with those surveys, GPR(Ground Penetrating Radar) is applied as a archaeogeophysical method to asses the unknown paths of historical supply lines and the water reservoirs such as the cisterns under the First Hill of ancient İstanbul. The First Hill of İstanbul has been the focal area of historical settlement in İstanbul. Therefore at the same time this is the area where the water infrastructure is most complex but most comprehensively exemplified. It is impossible for several reasons to conduct an archaeo-logical survey/excavation all over the mentioned area. The locations of known cisterns are helpful indications for judging the possible path of the supply line. The aim of the research is to analyse the historical water management applications during, Byzantine and Ottoman era till the XIXth century and reveal the evolution of water engineering through the history. The comprehensive analysis of the historical hydraulic system of the City is compared with the contemporary situation also in order to understand the effects of the climate change and the response of the authorities to the change through history. The ancient technologies which are more environmentally friendly have been analysed to be an inspiration for the new applications. The archaeological survey data, the historical and contemporary maps of water supply and the results of the GPR surveys are applies on GIS modelling which ha. permitted to a deeper understanding of the long term water hydrology of the city.

522. PUBLIC FOUNTAINS OF ROMAN ALGERIA, 3D SURVEYS AND CONSTRUCTION TECHNIQUES

**Contribution format:** Poster  
**Contribution authors:** Daniele Bursich (Università degli Studi di Verona)

Over the last 80 years, research on water and Roman fountains in North Africa has been carried out at various times and with discontinuity. However, among the many works on the subject, one can cite as an example the study by Pierre Aupert from the 1970s on the Algerian area and on the city of Tipasa, but also a valuable and more recent update on the Libyan area by Francesco Tomasello that focuses on the nymphaeum of Leptis Magna. A few years ago, however, a valuable annotated collection on the hydraulic systems of the Roman North African area - by Nicolas Lamare, who also boasts a catalogue of systems and technical sheets accompanied by recent and period photos - has allowed us to lay the general foundations on such a vast and complex topic. This paper aims to further explore Lamare’s work by focusing on the Roman Algerian area, also taking up Aupert’s studies, and at the same time introducing new aspects of research. In particular, the fountains and nymphaeum of Tazoult (Lambaesis), Djémila (Cuicul), Timgad (Thamugadis), and Tipasa will be discussed. Thanks to the 3D scans obtained with various indirect methods, it will be possible to highlight new observations regarding the positions of the fountains in the urban fabric, the construction techniques and innovative architectural solutions, as well as the introduction of new quantitative elements specific to each apparatus, such as volume, capacity, flow rate, and much more.

195 MORE THAN MEGALITHS: BEYOND BARROWS AND HENGES. A GLOBAL APPROACH TO FIRST MONUMENTALITY

**Session theme:** 2. Intertwined Epistemologies: Transcending the Data – Theory Divide  
**Session format:** Regular session  
**Session keywords:** Monumentality, Neolithic, Prehistory, Domestication of Space, Perception, Cognition  
**Session organisers:** Jadranka Verdonkschot – Felipe Criado-Boado (Institute of Heritage Sciences, Spanish National Research Centre (INCIPIT-CSIC)) – Carla Jaimes Betancourt (Bonn University) – Camila Gianotti (University of the Republic of Uruguay) – António Valera (ERA Arqueologia, SA)  
**Session discussant:** Johannes Müller (Kiel University)

SESSION ABSTRACT

This session seeks to explore several aspects of First Monumentality on a global scale. We are interested in understanding first monumentalities on several levels: in their conception and as enduring marks on the landscape. The first monuments did not “appear”. Therefore, rather than tracing an origin story, our focus is on how the earliest monuments represent a moment of culmination, as the materialisations of significant developments within prehistoric communities. These structures reflect not only the practical aspects of planning, organization, and execution—requiring substantial collaboration and communication—but also profound ideological shifts. But monument-building represents more than just a technical achievement. An important shift in how communities perceived and engaged with their environment took place. Early monumentality signifies a transformation in how people related to their surroundings, domesticating space by marking the landscape. The second part of the reflection we would like to invite you to participate in is the life of monuments once they have been conceived and built: the lasting influence of monuments after their construction. How do these structures continue to shape the lives, perceptions, and cognitive frameworks of the people who live with and contemplate them? How does the relationship between communities and their monuments evolve over time? We invite

contributions from colleagues working on First Monumentality across different regions of the world to share their work on us and engage together in a fruitful debate on the material, social, and cognitive implications of these enduring landmarks.

CONTRIBUTION ABSTRACTS

1057. MONUMENTS IN MOTION: THE BECOMING, TRANSFORMATION, AND AFTERLIFE OF MEGALITHS

**Contribution format:** Oral  
**Contribution authors:** Jadranka Verdonkschot – Felipe Criado-Boado (Institute of Heritage Sciences (INCIPIT-CSIC))

This presentation explores some of prehistoric Europe’s earliest monumental expressions: megaliths. Their construction fundamentally reshaped how societies engaged with space and landscape. However, this transformation was not sudden; rather, it was the outcome of a long process of domesticating space, one that began long before its material manifestation. Instead of seeking an origin story, we ask: what changed with megaliths? How did they alter spatial perception, structure human thought, and materialize evolving societal rationalities? Guiding this reflection is the life of a monument—its becoming, use, reuse, shifts in meaning, and the question of whether a monument ever truly ceases to be. Focusing on northwestern Iberia, we examine how monument-building intersects with broader cycles of transformation. Monumentality is not a single act of creation but the culmination of long-term interactions between humans and their environment. From “wild” monuments—striking natural features—to built structures that echo and transform them, from caves in mountains to burial mounds that emulate them, these spaces shape perception and social behavior, contributing to a structured order that both reflects and informs human cognition. This presentation integrates insights from ongoing research in the MILESTONE and Material Minds: XScape projects, which investigate the cognitive and material dimensions of monumentality.

239. ENDURING MONUMENTALITY IN THE SOUTHWESTERN AMAZON: THE CASARABE CULTURE AND THE LAKES OF EXALTATION IN THE LLANOS DE MOXOS, BOLIVIA

**Contribution format:** Oral  
**Contribution authors:** Carla Jaimes Betancourt (Bonn University)

Llanos de Moxos, located in the southwestern part of the Amazon, is one of the most extensive and enduring monumental landscapes in South America. This region has been shaped by nearly 10,000 years of socio-environmental change. The monumental earthen constructions (mounds, ditches, elevated fields, canals, and reservoirs) reflect significant ideological and social shifts as various Indigenous societies transformed the savannah into a complex, domesticated environment. Rather than simple technical achievements, these structures embody the intricate collaboration, communication, and interaction between human creativity and natural systems. This presentation explores the low-density urbanism of the Casarabe culture, recently uncovered by LiDAR research, as a hierarchical network of settlements with monumental civic-ceremonial architecture, extensive causeways, and advanced water management systems. At the same time, we analyze the communities surrounding the Great Tectonic Lakes of Exaltation, whose landscape modifications represent a unique response to environmental challenges, complementing the broader patterns of early monumentality in the region. These case studies highlight how monumental constructions not only redefined the relationships between humans and the environment but also left lasting impacts on both the physical and cultural landscape, influencing how communities adapted to and interacted with these structures over time. This contribution examines the lasting material, social, and cognitive effects of the monumental landscapes in the southwestern Amazon.

1534. MORE THAN RITUAL BUILDINGS : ON FIRST MONUMENTAL STRUCTURES OF EARLY NEOLITHIC UPPER MESOPOTAMIA AND “STONE MOUNDS” REGIONS

**Contribution format:** Oral  
**Contribution authors:** Ali Umut Türkcan (Anadolu Universitesi, Dept. Archaeology)

Early monumentality signifies a transformation in how people related to their surroundings, domesticating space by marking the landscape. Discussion on emergence of monumentalism within the early sedentary hunter-gatherer and later communities seem to be the development of ranking societies as well as the changing social dynamics of early sedentary foragers within their subsistence strategies.in Northern Mesopotamia. the creation of monumental religious structures does seem to be central to episodes of social integration and the formation of wider communities- whether be part of the “Neolithic”, “Urban”, or “Industrial” Revolutions. Public Architecture in the realm of first monumental building. apperared on Stone Mounds region as especially differentiated from residential domestic architecture. To understand The high level of sophistication and technology is also evident in architecture; neither the cult buildings of Karahan Tepe, Nevali Çori nor of Göbekli, adorned with pillars up to 3 m. high, nor the terrazzo floors could have been made by simple craftsmen. With these monumental buildings so



far over one dozen settlements in earliest Neolithic villages, it is seen that the big amount of energy and time could be focused or accumulated through time as seen in monumental projects. Socio religious authority that could be one of the earliest chiefdom society seem to have affirmed itself with greater force in the monumental constructions which continue to be found in Upper mesopotamia between Upper Tigris and Middle Euphrates regions.

1731. MEGALITHIC GRAVES OF THE FUNNEL BEAKER CULTURE AS A MIRROR OF EARLY NEOLITHIC SOCIAL DEVELOPMENT

**Contribution format:** Oral  
**Contribution authors:** Anja Behrens (Lower Saxony Institute of coastal historical Research)

The Funnel Beaker Culture (TRB, 4100-2800 cal BC) marks the introduction of the Neolithic way of life in northern Middle Europe. This development is closely tied to the establishment of megalithic building traditions, which have shaped the landscape to the present day. Recent research in two regions in northern Germany has revealed widespread characteristics in architecture, with regional and local traditions evident within the relatively short construction period. The spatial distribution and clustering of graves allow conclusions to be drawn regarding population sizes and settlement patterns. Over the following centuries, a consistent burial landscape is provable through repeated activities connected to the grave sites. However, pottery analyses and settlement studies also suggest shifting relationships on a regional and supra-regional level. These findings are based on studies conducted on the island of Rügen (TRB North group) and the Elbe-Weser-triangle (TRB West group). A comparison of both regions reveals parallel as well as differentiated developments within the TRB area, setting the stage for a broader understanding of the societies of that time, which shall be discussed.

2415. FROM NEOLITHIC MONUMENTAL ENCLOSURES AND EARTHEN LONG BARROWS TO EARLY MEDIEVAL BURIAL MOUNDS. ENDURING LANDMARKS OF THE MUSZKOWICE AREA

**Contribution format:** Oral  
**Contribution authors:** Agnieszka Przybył (University of Wrocław)

How did the landmarks established in the Neolithic affect the perception of space by successive communities living in the selected region of Lower Silesia? What environmental and cultural conditions influenced the location of special and sacred structures in the area? How did land use change after their establishment, and what impact did this have on prehistoric settlements in the region? And last but not least, can GIS analyses help us answer these questions? These issues will be explored in this brief presentation, which focuses on archaeological sites from different periods in the Muszkowice area, with an emphasis on their significance and continuity as important landmarks. The surroundings of Muszkowice village, located in southwestern Poland in the Sudeten Foreland, are rich in monumental structures from the Neolithic period. These include circular enclosures (rondels) and long earthen barrows. The former are the oldest and most mysterious monuments, while the latter marked the beginning of the funerary use of the selected sites, a practice that continued for many centuries. Due to the scope of this presentation, it is impossible to address many other questions that arise regarding the first monumental constructions in the region. However, the uniqueness of this area provides an opportunity for comprehensive studies on the adaptation to and familiarization with space by the earliest farming societies that inhabited it. Its distinctiveness allows us to examine the long-lasting impact it had on both the generations of builders and their successors.

1015. (RE)CONSTRUCTING SOCIETIES: AN ARCHITECTURAL ENERGETICS APPROACH TO THE STUDY OF THE NEOLITHIC RONDEL BUILDING IN THE LOWER AUSTRIA REGION

**Contribution format:** Oral  
**Contribution authors:** Mateusz Nowak (University of Wrocław)

Even before the erection of the first megalithic monuments in the region, Central Europe conducted its first big attempt on materialization of the idea of monumentality. The structures originated from that phenomenon came to be known as „rondels”. By this name we today recognize the enclosures characterized by rows of concentric V-shaped ditches, followed by circular wooden structures which designate the empty central plaza accessed via gates. These structures can be found in vast areas, stretching from Austria and Hungary, through Moravia, Czechia and Slovakia, up to Germany and the Northern Poland. Due to the lack of structures visible in the current terrain combined with complicated stratigraphy and advanced erosion on sites, the original appearance of rondel still remains a topic of a debate. One of its most reoccurring topics is the question, if those monumental structures were built as a consequence of one big construction event, or were they constructed over long, generations spanning, periods of time by successive adding of the new elements. Because of the lack of fully satisfying explanation to this question I would like to present another approach - the one of architectural energetics. In my speech I will present both the methodology of this approach and the results in the form of person-hours values needed for the construction of specific structures located in the Lower Austria region. I will also address the problems connected

with such calculations on the objects with forms invisible in the current terrain. The acquired data can help us to understand better the capacity of past communities to finish them in one construction event. Furthermore, the acquired data will help to envision the social structure of the rondel-builders by examining how much infra- or intraregional cooperation needed to be gathered for the construction of a rondel.

639. RITUALISED MONUMENTALITY: MEGALITHS IN NEOLITHIC MALTA

**Contribution format:** Poster  
**Contribution authors:** Dawn Saliba (University of Malta)

Malta's Late Neolithic society exemplifies a prehistoric civilisation that utilised the natural world in the conception and creation of ritually-centred structures and artefacts. The islands' ubiquitous limestone (globigerina and coralline) was carved to form megaliths, the literal building blocks of this civilisation's towering 'temples', perhaps inspired by massive rock formations rising from the sea. The architectural layout of many structures was designed to align with celestial events, such as solstice and equinox sunrises. Elaborate hypogea constructed near naturally occurring karstic systems or excavated from living rock exploited naturally occurring fissures, joints, and bedding planes as the basis of internal chambers or rock-cut features. Recurring motifs such as spirals were likely inspired by natural elements such as snail-shells, the swirling water of the sea, or the movement of stars. It is probable that pitted stones within liminal areas were imbued with meaning and served as 'hierophanic' markers. Carvings of animals, such as the snake and fish on the adorned blocks of the Ġgantija and Buġibba Temples, display aesthetic and probable mythic connections to animal-life, as do the myriads of animal carvings within Tarxien. One 'altar' table within the Haġar Qim Temple evokes plant-life. Distinctively coloured red ochre, drawn from the earth, was used to decorate temple walls, symbolically charged statues, and the bones of the dead, while the islands' malleable blue clay was consistently shaped into anthropomorphic and zoomorphic statues and figurines. Finally, the reuse and circulation of materials, such as pottery fragments and bones, further underscores the cyclical nature of their rituals. This study explores this society's sacral engagement between landscape, architecture, and material culture within Malta's Neolithic period, emphasising how these elements were integrated within their ritualised use of space and artefact.

196 STEEP ROADS TO COMPLEXITY: CULTURAL ADAPTATION AND OCCUPATIONAL STRATEGIES IN MEDITERRANEAN MOUNTAINOUS AREAS, FROM LATE BRONZE AGE TO ROMAN UNIFICATION

**Session theme:** 2. Intertwined Epistemologies: Transcending the Data – Theory Divide  
**Session format:** Regular session  
**Session keywords:** Landscape, Mountains, Later Prehistory, Alternatives to Urbanisation, Preroman Archaeology , Mediterranean Archaeology  
**Session organisers:** Elena Scarsella (Barcelona Supercomputing Center (BSC)) – Dario Monti (Université Catholique de Louvain)

SESSION ABSTRACT

As Fernand Braudel once said, the Mediterranean is a sea largely surrounded by mountains. Despite this prominent role, though, Mediterranean mountains and the societies that inhabited them have always been considered marginal, just the periphery of the great urban civilizations that developed at lower altitudes. It is precisely the urban element, or rather its absence in the mountainous context, that has motivated, in the eyes of both the ancients and many contemporaries, the marginality and supposed backwardness of these territories. Although this is slowly changing, such a dismissive attitude has long prevented an unbiased investigation of the specificities of this environment and is also partly responsible for a certain lack of extensive research on it. This session aims to explore the multiple and adaptive ways in which ancient communities dealt with such a difficult and often-times harsh environment, with specific attention to those case studies that investigate communities between the end of the Bronze Age and Roman unification. The session welcomes papers that explore the dialectic relationship between the mountainous environment and occupational strategies, and all the aspects that shape 'culture' and 'society' in the communities that lived there. Particular attention will be devoted to the identification, in all these facets of human societies, of possible general patterns, both in their material and immaterial manifestation. The aim of the session is therefore to restore the due importance and centrality of a landscape that covers such a huge part of th. Mediterranean and to provide a theoretical hub for those studying it.



1960. FORGING CONNECTIONS: METALLURGY, MOBILITY, AND PASTORAL LANDSCAPES IN THE VEZZENA-LUSERNA-LAVARONE PLATEAUS (NORTHERN ITALY) DURING THE LATE BRONZE AGE

**Contribution format:** Oral  
**Contribution authors:** Luigi Magnini (Ca’ Foscari University Venice) – Stefano Pedersoli (University of Sassari) – Armando De Guio (University of Padova) – Cinzia Bettineschi (Pegaso University)

The Vezzena-Luserna-Lavarone plateau, situated in the Trentino Alps, is a compelling case for reassessing the role of high-altitude landscapes in Late Bronze Age economic and social networks. Far from being isolated or marginal, this upland region was actively integrated into broader systems of metal production, pastoral mobility, and interregional connectivity. Archaeometallurgical evidence from copper smelting sites, combined with patterns of transhumance and resource exploitation, suggests a dynamic interaction between human communities and the mountainous environment. This paper explores how metalworking and pastoralism—often considered distinct economic activities—were interwoven within a strategic landscape characterized by seasonal movement and access to essential raw materials. The presence of copper smelting sites indicates specialized metallurgical knowledge and technological adaptation to an upland setting, while the evidence for pastoral activity highlights the importance of transhumant routes linking the plateau to both alpine and lowland spheres. These processes, in turn, facilitated connections with wider trade and communication networks, positioning the Vezzena-Luserna-Lavarone plateau as a key node in Late Bronze Age exchange systems. By integrating landscape archaeology, archaeometallurgy, and mobility studies, this research reassesses the adaptive strategies employed by past communities in high-altitude settings. Rather than viewing mountain societies as peripheral to major centers of power, this study highlights the agency of upland populations in shaping long-term economic and cultural trajectories within the broader Mediterranean and Alpine world.

1060. CONTINUITY, UNIQUENESS, AND TRANSFORMATION IN VALCAMONICA (ITALIAN PREALPS) DURING THE IRON AGE

**Contribution format:** Oral  
**Contribution authors:** Cinzia Bettineschi (Pegaso University (Naples) | Centro Camuno di Studi Preistorici (Capo di Ponte - Brescia)) – Silvana Gavaldo – Cristina Gastaldi (Centro Camuno di Studi Preistorici (Capo di Ponte - Brescia)) – Francesca Roncoroni (Soprintendenza Archeologia, Belle arti e Paesaggio per la città metropolitana di Milano | Centro Camuno di Studi Preistorici (Capo di Ponte - Brescia))

The rock art of Valcamonica, a UNESCO-listed world heritage site, offers crucial evidence of the enduring sacrality of mountain spaces from the Neo-Eneolithic into the late Iron Age (and beyond). Far from being a peripheral or marginal phenomenon, the ritual significance of Valcamonica’s engraved surfaces must be understood within broader patterns of landscape use, mobility, and visibility. The persistence of some figures—ranging from anthropomorphic and zoomorphic motifs to weapons and ritual scenes—suggests a long-term conceptualization of the mountains as liminal spaces of spiritual contact. During the Iron Age, the engraving of the rock surfaces was revitalized and became further entangled with broader religious practices typical of the Alpine and Prealpine environment, including the Brandopferplätze attested in several occurrences in Valcamonica. The association of engraved surfaces with elevated positions above the Valley floor, prominent rock surfaces, and strategic points along connective paths indicates their integration into networks of movement and, possibly, cultural ceremonies, as sometimes hypothesized based on the representation of engraved footprints. Visibility—both in terms of the engravings’ location within the landscape and their relationship to paths, watercourses, rock fractures, and older engraving cycles—suggests that these places were actively maintained as focal points of communal significance, reinforcing a continuity of use. This paper explores how Valcamonica’s Iron Age rock art might fit within a long-standing tradition of highland rituality, demonstrating the resilience and adaptability of sacred practices in response to broader socio-cultural transformations related to the growing Etruscan, Celtic, and Roman influence. By linking cultural expression, visual representations, ritual offerings, and landscape analysis, it reassesses the role of Prealpine rock art sites as central within the ancient Mediterranean cultural framework and as exemplary places of local permeability to broad-ranging external influences.

1443. SUBSISTENCE STRATEGIES AND INTERDEPENDENCE AMONG MOUNTAIN AND LOWLAND COMMUNITIES: THE CASE OF THE CISPADANA (4TH–2ND CENTURIES BC)

**Contribution format:** Oral  
**Contribution authors:** Enrico Caruso (University of Vienna)

With the occupation of the Northern Apennine regions in Emilia Romagna (Italy) during the 4th-2nd centuries

BC by the Celtic groups, the incoming populations had to interact with the local societies within this geographic context. Evidence suggests that, after an initial phase of potential conflict, the different cultural groups might have established at least non-confrontational relations. Based on the archaeological record, this interpretation is further supported by the distribution patterns of the Boii, who did not spread uniformly among the entire mountain region. Instead, they appear to have settled primarily outside the Apennine border, with the notable exception of the well-documented sites located in the Idice and Reno Valleys, extending as far as the Apennine area near Faenza. This newly formed mosaic of communities, consisting of both locals and newcomers, provides an opportunity to identify potential shared or distinct traits in the subsistence strategies required to thrive in mountainous environments. This contribution aims to outline and compare these approaches among the various groups (Ligurians, Celts, Etruscans, and Umbrians) inhabiting these multifaceted region, as well as their connections with the Po Valley. While the local mountain communities may have relied on long-established practices developed over decades, the newcomers had to adjust to an unfamiliar environment, as exemplified by the case of Monte Bibele. The focus will therefore be placed on identifying these strategies through an analysis based on historical sources and the spatial distribution of materials and occupied areas. Additionally, the coexistence of a variety of strategies may also have fostered interdependence among those communities, possibly as a result of their cooperative interactions.

1310. PROTOHISTORIC SETTLEMENT IN MOUNTAINOUS CENTRAL ITALY: DYNAMICS AND NEW APPROACHES TO TERRITORIAL ANALYSIS

**Contribution format:** Oral  
**Contribution authors:** Andrea Conte (Sapienza - Università di Roma)

During the Late Bronze Age, a shift in settlement strategies can be observed: while during the Middle and Recent Bronze Age settlements were predominantly located in lowland areas, this phase saw the progressive occupation of mountainous districts, chosen for their morphometric characteristics favorable for defense. These settlements were often reinforced with artificial structures such as defensive walls or ditches. This study examines selected areas of Central Italy (Monti della Tolfa, Monti Cimini, Colli Albani, and the Umbro-Marchigiano Apennine district) to analyze the settlement patterns of upland sites in Protohistoric times. To this end, a site inventory was conducted, and well-established methodologies, such as LiDAR analysis, were applied to identify and characterize different types of occupation. This approach has made it possible to assess how prehistoric communities adapted to new settlement needs by utilizing mountainous areas. The use of LiDAR has proven particularly valuable in detecting sites concealed by dense vegetation, providing new data on the distribution and morphology of these settlements. The analyzed sites span a chronological framework ranging from the Late Bronze Age to, in some cases, the Early Iron Age and later historical phases. This research is part of a broader PhD project aimed not only at studying the settlement dynamics of the Late Bronze Age in mountain environments through the integration of archaeological and morphometric data but also at developing new methodological approaches. In particular, the use of drone LiDAR sensors enhances the ability to detect and analyze archaeological sites in complex landscapes. The use of these advanced technologies opens new perspectives for studying Protohistoric occupation in mountain areas, refining territorial investigation methods, and expanding the possibilities for reconstructing ancient landscapes.

1787. ALL ALONG THE CASTELLIERI. NEW INSIGHTS ON AN APENNINE PHENOMENON

**Contribution format:** Oral  
**Contribution authors:** Dario Monti (UCLouvain) – Elena Scarsella (Barcelona Supercomputing Center (BSC))

The so-called castellieri, often referred to as oppida, ocri, or more generally as hillforts, are one of the defining features of the mountainous landscapes of central Italy during the 1st millennium BC. These sites are particularly distinctive not only due to the architecture of their often monumental walls but also because of their strategic positioning within the landscape. They are found along the entire Apennine ridge, from Umbria to Samnium. The general lack of systematic excavations means that these sites are still not fully understood in many respects, both chronologically and functionally: were they settlements? Watchtowers? Enclosures for livestock? Or were they rather multifunctional sites, serving these and other purposes simultaneously? Their apparent homogeneity, which seems to disregard the ethnic diversity of the regions in which they are found, suggests that they represent a phenomenon spanning most of the Apennine area. At the same time, their distribution appears to extend beyond the scope of the so-called Italic koinè, indicating that their interpretation should not be confined to this already highly diverse cultural sphere. This paper investigates these archaeological features in a core area of the central Apennine region, specifically in the territories straddling the modern regions of Umbria, Marche, and Abruzzo. The objective is to present a comprehensive analysis of the evidence in this area, focusing on distribution, morphology (shape, size, and architecture), and associated material. By compiling an inventory of the available data, the study aims to propose a broad historical interpretation of this phenomenon, which appears to have been a unifying feature of many mountain communities across the Italian peninsula, regardless of their



cultural and political differences. In this sense, it seems to represent a recurring pattern amongst Italic mountain communities persisting over a long diachronic span.

**1154. FROM PEAK TO PEAK. PRELIMINARY ANALYSIS FROM THE PRE-ROMAN SANCTUARY OF MONTE TORRE MAGGIORE (TR)**

**Contribution format:** Oral  
**Contribution authors:** Nicolò Sabina (Sapienza Università di Roma)

High-altitude cult areas in the Apennines are the most prominent and well-known example of human interaction with the mountain environment in pre-Roman times. However, widespread clandestine excavations in recent decades, coupled with the resulting dispersal of archaeological finds and a scarcity of thorough research, have severely hampered our understanding of these sites. Southern Umbria is no exception. Fortunately, the scientifically rigorous excavation of the Monte Torre Maggiore sanctuary (1121 m amsl) near Terni, conducted by the Soprintendenza per i Beni Archeologici dell’Umbria between 1984 and the early 2000s, offers a valuable case study. Beginning Autmn 2024, a PhD project at the Sapienza University of Rome has commenced a systematic and detailed analysis of the partially published archaeological remains. Preliminary findings suggest a complex and dynamic history, offering insights into various aspects of pre-Roman highland cult areas, particularly the phenomenon of small, schematic bronze votives, which are characteristic of Umbrian religious practice.

**1883. “... THEN HERCULES WILL GO TO THE MOUNTAIN.” NEW INSIGHTS ON HERCULES’ CULT IN 1ST MILLENNIUM BC CENTRAL APENNINE ITALY**

**Contribution format:** Oral  
**Contribution authors:** Loredana Lancini – Dario Monti (UCLouvain)

This paper explores the relationship between the mountainous environment of central Apennines Italy and the cult of Hercules, examining the ways in which this specific landscape may have influenced the practices and beliefs of the local societies. It also seeks to evaluate whether, and to what extent, talking about an ‘Italic Hercules’ has meaning, and what were his main cultic traits. While earlier studies have highlighted the association of Hercules worship with transhumance, this research takes a broader view, questioning whether the mountainous context itself contributed to the development of distinct cultic features in these regions. To do so, particular attention will be given to the spatial and topographical distribution of the cult. The cult of Hercules in central Italy appears, as already proposed by some, to have been shaped not only by pastoralism but also by other forms of mobility, such as trade. By examining both archaeological and epigraphic evidence, this paper aims to investigate whether there were regional patterns in the expression of the cult that may have been linked to the unique characteristics of the mountain environment. It also aims to investigate the types of contacts that could have taken place in areas sacred to him, and the identity of their protagonists. The paper also considers the possibility that the cult’s spread and forms were also partly adapted to the specific challenges of mountainous life, offering new insights into how religious practices were interwoven with the local environment. By addressing the mountain environment’s influence on the cult of Hercules, this paper seeks to contribute to a more comprehensive understanding of the cultural and societal dynamics in these often-overlooked regions of the ancient Mediterranean. In doing so, it highlights the central role that mountain communities played in shaping both religious and social landscapes in pre-Roman Italy.

**2290. BEYOND FORTIFICATIONS: REVISITING LA MESA DE MIRANDA AND THE SHIFTING SETTLEMENT PATTERNS OF THE AMBLÉS VALLEY (ÁVILA, SPAIN)**

**Contribution format:** Oral  
**Contribution authors:** Carmen Ramírez Villadóniga (Terra Levis-MASAV)

The Iberian Peninsula’s orography is characterized by a high number of mountain systems relative to its total surface area. The resulting geographical isolation of these reliefs has fostered the development of numerous cultural variants with own entity and identity throughout Late Prehistory. At the same time, these cultural dynamics have been deeply influenced and shaped by successive migration waves from Europe since the first millennium BC. The research project led by Terra Levis-MASAV in the natural region of the Amblés Valley and the surrounding mountain ranges provides a diachronic perspective on the consolidation and evolution of settlement patterns from Prehistory onwards, with active local community participation as a central element in the shaping of this cultural landscape. The resumption of excavations at the Vetton oppidum of La Mesa de Miranda (II Iron Age) nearly twenty years later opens new avenues not only for the characterization of this type of hillfort settlements. Although this site has been known since the early 20th century, previous research has predominantly focused on its necropolis and defensive structures, to the detriment of habitation areas. As a result, our understanding of its internal layout, including its earliest occupation levels, remains significantly limited. This study aims to explore the abrupt shift in settlement strategies within the Amblés Valley and its highlands, particularly during

the transition from the Late Bronze Age to the Early Iron Age. This will be achieved through the analysis of the geographical, socioeconomic, and cultural factors that may have driven this process. The stratigraphic sequence and preliminary results from one of the test trenches excavated during the first campaign in 2024 suggest that the occupation of the hilltop may predate the Second Iron Age.

**1256. A PERIPHERY BETWEEN THE MOUNTAINS AND THE SEA? SOME REFLECTIONS ON SOUTHERN PHOCIS IN LH IIIB**

**Contribution format:** Oral  
**Contribution authors:** Stefano Ruzza (National and Kapodistrian University of Athens | La Sapienza, University of Rome)

This paper aims to explore how the inhabitants of southern Phocis adapted to the unique characteristics of their environment and how they interacted with the Boeotian palatial societies during the period in LH IIIB (1300-1200 BC circa). Southern Phocis, a mountainous peninsula, can be divided into two areas based on its geography: a western and an eastern section. Both regions featured mountains and the sea as key landscape gateways, intersecting the route that connected Central Greece to the Gulf of Corinth. Within this framework, it is possible to see two main routes. The western route, centered around the sites of Krisa and Gla, appears to have been entirely independent of any palatial authority and forming at the same time a small system. On the other hand, the eastern route, focused on Medeon, may have been more directly engaged with Boeotian authorities, although Medeon itself might not have been directly subordinated to any palatial center.

**1876. ROADS TO NOWHERE, ROADS TO THE WORLD**

**Contribution format:** Oral  
**Contribution authors:** Jelena Celebic (Koc University)

In this paper I discuss “minor” or “marginal” roads of the hinterland of the Bay of Kotor, their longevity, and role in connecting rural production centers to the coast and its market. The data set is composed by the data from the archives of Kotor and Zadar-- documents related to traded goods, and maps representing roads primarily from the early 19th century. Braudel argued that whole Mediterranean consists of movement in space and that maritime and terrestrial routes are the channels of that movement. When it comes to terrestrial roads, he underlined the importance of animals, in particular mules, horses, and “mule paths”. Analogies based on information drawn from archival data and living societies provide plausible comparative data. Ancient writers such as Varro wrote that Illyrians were keen pastoralists, while Pliny the Elder mentioned goods produced in the province of Dalmatia including animal wool, timber, metals, and cheese. These goods are also mentioned in the archival documents from Early modern period and represent typical products of the rural economy: products of the hinterland of the Bay of Kotor. With this research I am also questioning whether we can hypothesize that the pre-industrial economy of the Bay of Kotor and its hinterland, and the economy in early Roman imperial period were similar. Maritime trade and all the other activities that took place in the Bay of Kotor would have been impossible without these “marginal” mule paths. In spite of the existence of numerous data, texts and maps, the direct study of pre-modern roads is difficult due to mountainous terrain. For this reason, as a preliminary approach I apply the method of the least cost analysis using GIS. Establishing the connections between the harbor of Kotor and villages in its hinterland brings to light new data regarding these routes through time.

**197 TEXTILE TOOLS MADE OF HARD ORGANIC MATERIALS: NEW PERSPECTIVES ON TEXTILE PRODUCTION IN EUROPEAN PROTOHISTORY AND ROMAN PERIOD**

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** hard organic materials, textile tools, protohistory, Roman period  
**Session organisers:** Vanessa Baratella (University of Padua | University of Ljubljana) – Ricardo Basso Rial (University of Granada) – Margarita Gleba (University of Padua)

**SESSION ABSTRACT**

In the context of European protohistory and Roman period, artifacts related to textile production played a role of absolute relevance in the self-representation codes and in defining social identity. The economic-productive, social, and symbolic value that spinning and weaving activities assumed in protohistory and Roman period have been, particularly in recent decades, the subject of numerous interdisciplinary studies. Among the various indicators belonging to this category, alongside the substantial productions of ceramic spindle whorls and loom weights, there appears a particular class of textile tools – spindle whorls, rods, weaving combs, tablets etc. – made



of Hard Organic Materials (wood, bone, ivory, horn, antler, shell, amber). In productive and technological terms, the introduction of this category of artifacts into the textile landscape can be linked to the need for tools with specific characteristics and performance, perhaps for the creation of particular yarns; from a symbolic perspective, these objects can be recognized as high-quality productions of significant prestige and value. In order to understand the destination and use of these tools, the production processes and the chaîne opératoire related to their use, this session aims to promote the large-scale observation of this phenomenon across European protohistory and the Roman period using interdisciplinary approaches. These range from the typological-morphological study of artifacts - employing both traditional methodologies and Digital Archaeology techniques - to preservation factors, archaeozoological and paleoproteomic characterization of raw materials, and extend to use-wear analyses and experimental archaeology.

CONTRIBUTION ABSTRACTS

50. WEAVING WEAPONS. ORGANIC SCABBARD REMNANTS ON WEAVING SWORDS FROM LATE ROMAN AND EARLY MIGRATION PERIOD NORTHERN EUROPE

**Contribution format:** Oral  
**Contribution authors:** Georgia Gould (Scandinavian Studies Department, University College London)

Weaving swords have been a staple tool used in conjunction with looms as long as the textile technology has been available. These swords have been made in a variety of materials, such as wood, bone and metal. During the Late Roman and Early Migration Period, metal weaving swords with an elongated tip start to be buried with women in Northern Europe. When excavated, usually only the blade remains, but the weaving swords most likely had organic handles of wood and bone. However, less scholarly attention has been paid to the metal weaving swords which appear to have remnants of textile, wood and leather surrounding the blade itself, for example, in female burials from Erga farm, Rogaland and Sande, Agder in Norway. This paper argues that these remnants of organic materials on the blade indicate a scabbard or sheath for the weaving sword, in a similar manner to those used on weapons. This theory can be reinforced with an analysis of the position of the weaving swords in female burials as well as the comparison of organic remnants on weapons from burial contexts. If weaving swords with scabbards were wearable accessories in a similar manner to fighting swords, then it is necessary to discuss the symbolism and status of weaving in Late Roman and Early Migration Period Northern European societies. Using archaeological evidence alongside anthropological methodologies such as Object Biography, Actor-Network-Theory and experimental archaeology, this paper will provide a new interpretation of wearable weaving tools in Northern Europe.

271. BEYOND CLAY: INTERPRETING IRON AGE BONE AND WOODEN TOOLS FROM TWO SITES ALONG THE SAVA RIVER

**Contribution format:** Oral  
**Contribution authors:** Janja Mavrovic Mokos – Julia Katarina Fileš Kramberger (University of Zagreb, Faculty of Humanities and Social Sciences)

Textile production tools made of clay are the most abundant in Iron age Croatia and Bosnia and Herzegovina. However, several newly discovered and analysed wooden and bone artifacts from two sites along the Sava river give insights into another technological – and possibly symbolic – aspect of textile production. At Donja Dolina in northern Bosnia, a small percentage of wooden and bone spindle whorls have been documented in an entire whorl assemblage counting just under 2000 objects. Due to lack of find context information, their interpretation as spindle whorls is intriguing, especially the wooden ones, as no traces of spindle shafts were recorded. Nevertheless, their overall appearance and hole diameter resembles the more common, clay spindle whorls, which suggests a complimentary use of spinning tools made of alternative, organic materials that are unfortunately rarely documented at this site. Upstream the Sava river, at the site of Sveti Križ in northern Croatia, clay textile production tools are the norm. Nevertheless, in recent excavations, a specific, perforated bone tool was found. The tool in question is a finely made and decorated narrow bone object, 4.5 cm in length (with a reconstructed length of possibly about 6 cm). This object features five small perforations visible on the side, which might imply its use as a textile production tool. Based on similar finds from Italy, it might have been used as a warp spacer during loom weaving or tablet-weaving. Interestingly, this artifact was found in an area interpreted as a ritual object due to its stratigraphic structure and the eclectic nature of fine objects found inside. Such context suggests that this find, and textile craft in general, may have had an additional symbolic significance which is not uncommon during the Iron age.

476. TEXTILE TOOLS FROM OLBIA PONTICA: TECHNOLOGICAL AND SOCIAL ASPECTS

**Contribution format:** Oral  
**Contribution authors:** Alisa Semenova (The Institute of Archaeology of the National Academy of Science of Ukraine)

The manufacturing textiles was an important part of economy of Hellenic city-states in Northern Black Sea region; however, the study of this craft has not received much attention from scholars. This is due to the status of the “minor objects” for most tools related to textile production, and limited interest in the so-called “female domain”. The high demand and interest in some specific fabrics contributed to the development of textile production as a specialized manufacturing, which, however, did not replace domestic craft. From written sources, we know that at least 1st century AD, fabric was imported to Olbia. However, numerous findings of tools for textile production indicate local manufacturing, likely within the domestic craft. Wood is rarely preserved in Olbia, and as far as I know, no wooden artifacts related to textile processing have been found so far. This makes bone counterparts of wooden tools, which were presumably the majority, particularly valuable for studying this sector of the economy. Artifacts made of bone and antler from different stages of textile production have been found in Olbia and in settlements within its influence. These include combs for raw material preparation, distaffs, spindles and spindle whorls for spinning, pin beaters for weaving, needles for finishing the final product, and some other tools whose function remains a subject of discussion. In Ancient Greek and Roman society, women were mainly responsible for making clothes for their families. Because of this spinning tool were also tried to women’s roles in society, which is why they are often found in female graves. Tools made from more expensive materials probably indicated the high status of their owners. A thorough analysis of all materials related to this topic helps us better understand not only the technical aspects of textile production but also the social importance of certain artifacts.

608. HARD ANIMAL MATERIALS SPINDLE WHORLS FROM FINAL BRONZE AGE SITE OF FRATTESINA (ITALY): TYPOLOGY AND RECONSTRUCTION OF THE CHAÎNE OPÉRATOIRE

**Contribution format:** Oral  
**Contribution authors:** Vanessa Baratella (University of Padua | University of Ljubljana)

In the context of Italian protohistory, artifacts related to textile production have played a role of absolute relevance in the self-representation codes of the female figure and her social persona. Among the various indicators belonging to this category, a particular class of spindle whorls stands out - absent in previous eras - made of animal hard materials and characterized by a decoration of dice eyes and grooves that directly recalls solar iconography. These artifacts, particularly widespread in the Po Valley and Veneto area, have an immediate development - especially in quantitative terms - in the Final Bronze Age 1-2, persisting until the Early Iron Age 1, and then no longer being attested in subsequent phases. The most significant sample of this category comes from the Late Bronze Age central place of Frattesina (Veneto, Italy), a site where several workshops for high-value productions, as amber, ivory, glass and bronze, are recognized. The function of this class of spindle whorls has not yet been investigated in both historical and productive and technological terms: this work therefore aims to analyze the artifacts from Frattesina from a typological point of view and to reconstruct their chaîne opératoire in order to systematize the data and outline the production processes of this particular class of spindle whorls, perhaps intended for the production of particularly valuable yarns.

642. ZOOARCHAEOLOGICAL ANALYSIS OF DECORATED BONE SPINDLE WHORLS: INSIGHTS FROM THE PROTOHISTORIC SITE OF FRATTESINA DI FRATTA POLESINE (VENETO, NORTHERN ITALY)

**Contribution format:** Oral  
**Contribution authors:** Maria Sofia Manfrin – Umberto Tecchiati (University of Milan, Department of Cultural and Environmental Heritage)

Textile tools made of hard organic materials represent key indicators of protohistoric spinning and weaving activities. Among these, decorated bone spindle whorls provide valuable insights into the selection and use of animal skeletal materials in textile production. This paper presents a zooarchaeological study of a group of spindle whorls, recovered from the site of Frattesina di Fratta Polesine (Veneto, northern Italy), dated between the end of the Late Bronze Age and the beginning of the Iron Age. These artefacts come from the settlement area – where they were found through both excavation and survey activities – as well as from burials in one of the two cemeteries associated with the site. Through the identification of raw materials and the analysis of taphonomic traces, this research aims to reconstruct the selection criteria for skeletal elements and explore post-depositional processes affecting these artefacts. The study integrates traditional zooarchaeological methodologies with detailed microscopic observation to refine our understanding of material choices. By focusing on the faunal component of textile-related artefacts, this research contributes to a broader discussion on the selection and use of hard animal materials in protohistoric craftsmanship and their role within textile production processes.



950. NOT ALL WERE CLAY. PROTOHISTORIC BONE SPINDLE WHORLS IN THE IBERIAN PENINSULA

**Contribution format:** Oral  
**Contribution authors:** Ricardo Basso Rial (University of Granada) – Marta Blasco Martín (University of Valencia)

The spinning process, one of the main activities in textile production, is usually inferred in archaeological contexts thanks to the preservation of spindle whorls, mainly made of clay. However, at certain times and less frequently, other materials such as bone were also used. This is the case in the Iberian Peninsula, where this type of tool was present throughout the 1st millennium BCE. This paper analyses the bone spindle whorls found in the east-ern of the Iberian Peninsula during the Protohistory, from the Late Bronze Age to the end of the Iron Age. An exhaustive compilation of these artefacts is presented, detailing their morphological characteristics, manufac-turing techniques and contexts of finding, with the aim of evaluating their role in textile production during a period of deep social, economic and technological transformations. Most of the bone spindle whorls were made from sawn or cut femoral heads of *Bos taurus*, although there are exceptional cases, such as one specimen made from a remain of *Homo sapiens*. Furthermore, their use is not limited to the Protohistoric period but extends to later moments, such as the Roman times and even the medieval era. In short, this work focuses on the func-tionality of these artifacts within the spinning process, assessing their coexistence with clay spindle whorls in the same archaeological contexts and pointing out their probable use in the production of wool threads, a mate-rial that acquired greater relevance in this period due to the growing textile and livestock specialisation. It also examines the reasons for the selection of bone as a raw material and the implications of its distribution in rela-tion to changes in production and trade dynamics. In doing so, it reflects on the development of textile production throughout the first millennium BCE, drawing comparisons with other geographic areas of similar chronologies.

1625. AMBER DISTAFFS FROM POLAND – A SIGN OF STATUS OR A USEFUL TOOL?

**Contribution format:** Oral  
**Contribution authors:** Magdalena Przymorska-Sztuczka (Archaeological Museum in Biskupin)

On an occasional basis, in the graves inventory from 1st to 3rd century CE in Poland, objects interpreted as distaffs emerged. Approximately a dozen of these artefacts have been discovered so far. Some examples are partially preserved and were made from a wooden shaft connected by cylindrical bronze plates, with amber or glass beads or bronze discs at the ends. Other specimens were crafted from amber beads strung on a bronze rod. Due to their shape, these finds were often referred to in older Polish literature as sceptres, spindles or objects associated with worship, the use of cosmetics, and hairpins. Nowadays, however, these artefacts are identified as textile tools. The distaffs discovered in Poland are similar to objects found in regions of the Roman Empire. It is difficult to determine whether the objects discovered in the graves, especially those made entirely of amber elements, were used in the spinning process or whether they were only a reflection of the high status of the buried women. But one thing does not exclude the other. The experimental work proves that these items could have been used in the spinning process, and the amber material certainly did not limit their function.

558. WOODEN TEXTILE TOOLS FROM THE EARLY-MIDDLE BRONZE AGE SITE OF MOLINA DI LEDRO (TRENTO, ITALY)

**Contribution format:** Poster  
**Contribution authors:** Maria Elena Bertoli (School of Humanities, University of Glasgow)

Some of the earliest evidence of textile production in northern Italy comes from the Bronze Age (c. 2200-1600 BCE) pile dwelling sites. The pile dwellings have produced some of the most important archaeological evidence of textile and fibre production and use during European prehistory since their waterlogged conditions preserve organic matter, such as textiles, balls of yarn, cords, and baskets, and wooden tools. Among the pile dwellings, remarkable for the quality and quantity of excavated materials, is the site of Molina di Ledro (TN). During the excavation conducted by Raffaele Battaglia in 1937, almost 300 textile finds, more than 300 spindle whorls, and almost 200 loom weights were identified. Moreover, in the settlement, a large quantity of wooden artefacts, over one thousand, were excavated. Among these wooden artefacts, it is possible to recognise tools related to textile activities, such as flywheels, spindles, weaving swords, and wooden combs. Wooden textile tools complete the already complex picture of textile production tools made of non-perishable materials, such as clay. Wooden textile tools are crucial for our understanding of the volume and complexity of textile production carried out on the settlement. The wooden textile tools from Molina di Ledro will be compared to other finds from the Early-Middle Bronze Age sites of Fiavè-Carera (Trento, Italy), Polada (Brescia, Italy) and Barche di Solferino (Mantua, Italy).

2235. LATE ROMAN CIVILIAN TEXTILE PRODUCTION IN MILITARY CAMPS IN DACIA RIPENSIS

**Contribution format:** Poster  
**Contribution authors:** Gordana Jeremic – Selena Vitezovic (Institute of Archaeology Belgrade)

Textile production was a significant activity of Late Antique society. It was organised from family crafts to impe-rial court production for different social classes, especially for the army. The invention of the horizontal loom in Late Antiquity contributed to the improvement of the weaving process. Findings of wooden looms in the Balkan Danube provinces have not been registered so far. However, finds of cylindrical bone objects made of deer antlers, with hollow insides and an added rectangular plate, have been interpreted by recent interdisciplinary research as heddle holders. In Late Antiquity, the province of Dacia Ripensis on the soil of the present-day Republic of Serbia represents hilly areas rich in forests and the natural habitat of the red deer. Antlers were an available and frequently used raw material for the production of various objects (combs, parts of weapons, furniture, or elements of looms). Archaeological research in the interior of auxiliary forts from the period of Late Antiquity (the last third of the 4th and the first half of the 5th century) has yielded a wealth of data on life on the Roman border. Based on the findings, it is possible to reconstruct numerous activities of their inhabitants, not only mili-tary in character. Activities included small-scale pottery, glass, bone production, metalwork, and more. Based on the topography of finds related to textile production, we will try to determine their frequency in military forts and raise the question of whether there were specialised workshops for the purpose of making heddle holders or whether they simply loom finds in the forts on the Danube Limes.

198 YOU CAN CHANGE FRIENDS BUT NOT NEIGHBOURS. INTRA-COMMUNITY DYNAMICS AND LOCAL IDENTITIES IN MEDIEVAL EUROPE (5TH–15TH CENTURIES)

**Session theme:** 2. Intertwined Epistemologies: Transcending the Data – Theory Divide  
**Session format:** Regular session  
**Session keywords:** Medieval Europe, Archaeology of power, Every-day life, Intra-community relations, Landscape archaeology, Local identities  
**Session organisers:** Mario Pereiro Fernández (Universidade do Minho) – Leonor Baeza Gomariz – Laura Blanco Torrejón (Universidad de Salamanca) – David Sánchez Serrano (Universidad Rey Juan Carlos)

SESSION ABSTRACT

This session examines the socio-economic dynamics within communities in Medieval Europe (5th–15th centuries) and their role in shaping local and supra-local identities. The primary focus will be on archaeological evidence, while also integrating insights from related fields such as anthropology, epigraphy, history, and palaeography. This interdisciplinary approach will facilitate a nuanced understanding of this complex reality. We seek to explore how social interactions, daily practices, and responses to crises influenced identity formation and community cohesion. Specific areas of interest include the role of power dynamics among various social agents (e.g., fortifi-cations, religious edifices), economic interconnections (e.g., material production, trade), the delineation of the medieval landscape, and gender relations. While traditionally addressed through Political History, these themes are now central to Social and Economic History, yet remain underexplored in archaeological research. Papers are invited that investigate these processes at a sublocal level, emphasizing how internal community relations and external influences shaped identity and resilience. Our goal is to unravel the mechanisms of coexistence, conflict, and transformation within communities, contributing to a deeper understanding of medieval Europe’s social fabric from a ground-up perspective.

CONTRIBUTION ABSTRACTS

234. DOCUMENT ARCHAEOLOGY: LOCAL WRITING PRACTICES IN THE CENTRAL-WEST IBERIAN PENINSULA (5TH–8TH CENTURIES)

**Contribution format:** Oral  
**Contribution authors:** David Sánchez Serrano (Universidad Rey Juan Carlos)

The “Visigothic” slates constitute a unique corpus of documents, accounts, and historical graffiti inscribed on slate, found within early medieval rural contexts in the central-western Iberian Peninsula. As archaeological artefacts, they should be examined through the lens of material culture studies (MARTÍN VISO, 2013), as they provide critical evidence of information production and transmission processes (VIDALE, 1992). This corpus offers unparalleled insight into the everyday realities of local societies, shedding light on their daily practices, social actors, and socio-economic structures. The use and control of writing technology by local elites (GOODY, 1986) not only underscore the significance of literacy in these communities but also reveal a tangible connection with political centers, particularly from the seventh century onwards. This study investigates the dynamics of interaction and conflict within these rural communities, using the Visigothic slates as a primary source alongside



their archaeological context. It explores how inter-community relationships shaped regional social and economic structures and examines the mechanisms through which social conflict arose and was resolved. Particular attention is given to the role of local elites in mediating disputes and consolidating power through the strategic control of writing practices.

**899. MY NEIGHBOUR’S BOUNDARIES: RECONSTRUCTING PEASANT LANDSCAPES IN MEDIEVAL LIÉBANA (CANTABRIA, SPAIN), 9TH-11TH CENTURIES**

**Contribution format:** Oral  
**Contribution authors:** Leonor Baeza Gomariz (Universidad de Salamanca)

The aim of this paper is to study the spatial organization established by different social agents in the Liébana region (Cantabria, Spain) between the 9th and 11th centuries, through the study of its landscape. For a historian, landscape refers especially to the way in which individuals understand, conceive and symbolize a physical space, being this space the basis for all social interactions. Thus, it is a historical document with deep cultural meaning, associated with the symbolic construction of a scenario in which individual and collective identities play out. The landscape acquires, therefore, a biographical character that recalls the traces of past activity and events. All places and landscapes are, as a consequence, part of the social and individual temporality of memory (Tilley, 1994: 27; 2010: 37; Martín Viso, 2016: 10-11; Tosco, 2020:82). The aim of this paper is to insert the local communities in their landscape, by means of a double approach. First, through the analysis of the spatial dynamics of the peasant communities documented for this period. Second, through the phenomenological study of the landscape based on the information preserved in the boundary clauses preserved in the Early Medieval documentation of the monasteries of Santa María de Piasca and Santo Toribio de Liébana. These clauses are important potential sources for studying the organization and perception of space by the actors involved its management and use. This analysis allows for the reconstruction of the traces of everyday activity to a degree that the material record is not always able to show.

**86. REVISITING PERIPHERAL IDENTITIES: AN INTERPRETATIVE AND METHODOLOGICAL CHALLENGE TO TRADITIONAL NARRATIVES**

**Contribution format:** Oral  
**Contribution authors:** Sonia Medina Gordo (Universitat de Barcelona | Centre d’Estudis Martorellencs)

The study of medieval societies often relies on interpretative frameworks shaped by socio-economic models that later emerged as dominant. While these approaches provide valuable insights, they risk imposing predominant narratives on past societies, marginalising alternative configurations of community identity and cohesion. This issue is particularly evident in regions characterised as peripheral, where archaeological interpretations frequently infer economic and social structures based on modern landscape perceptions or prevailing historiographical paradigms. This paper offers a critical reassessment of these frameworks through a case study in the Sierra de la Demanda (Spain), a region where the scarcity of written evidence and ongoing interpretative debates regarding its archaeological materiality have hindered a revision of the narrative surrounding its early medieval past. This research re-examines the sources of information using a methodological approach that emphasises local and contextual dynamics. It critically examines the heuristic frameworks often applied to peripheral regions, challenging traditional assumptions about mountain economies, spatial characterisation, and identity formation. In this sense, the approach transcends retrospective analyses to address elusive scenarios in both the written and archaeological evidence using a digital perspective. Through a process of deconstruction, the study not only reconfigures the narrative of a specific region but also demonstrates the potential of the “decolonial thought” to challenge established imaginaries for medieval society in empirically problematic spaces. By emphasising the interplay between sources and interpretative frameworks, this contribution offers alternative pathways to understanding the socio-economic dynamics of early medieval communities.

**1981. LIVE LIKE A SUEBIAN... DIE LIKE A SUEBIAN? (NOT-SO) GERMANIC IDENTITIES IN THE FUNERARY REMAINS OF NORTHWESTERN HISPANIA (5-6TH AD)**

**Contribution format:** Oral  
**Contribution authors:** Laura Blanco Torrejón (University of Salamanca) – Patricia Valle-Abad (GEAAT - University of Vigo)

The material evidence found in funeral contexts has been used throughout History as one of the main tools to attribute a community to a cultural complex. Still, it has also been linked to a specific social/ethnic group. One of the primary debates within this approach was whether specific late-antique graves belonged to a particular Germanic group based on the typology of the graves, their grave goods and/or the iconographic motifs on their tombs. In this paper, we aim to review these traditional interpretations, focusing on the Suebian population in Hispania and their archaeological remains. We consider their integration within the broader context of the

political and religious dynamics of the time. At the outset of the 5th century, the Iberian Peninsula witnessed the arrival of various Germanic groups, among which the Suebi were particularly notable, establishing themselves predominantly in the northwest region of the peninsula. The archaeological remains from the 5th-6th centuries that have survived to the present day are not particularly extensive, mainly due to the lack of a more detailed study of this period. However, quantitatively, we do have a considerable number of funerary remains. Traditionally, the funerary spaces of these two centuries have been defined as “Suebian necropolises,” a term interpreted not only in its political dimension but also as a break in funerary rites and material culture. An example of this is the so-called laudas de estola, traditionally associated with Christian Suebian individuals’ graves, as this decorative motif is linked with the figure of a praying person. In 2010, authors such as J. López Quiroga pointed out the few differences between the Suebian material culture and earlier periods. And yet the association of a Germanic identity with certain social elements like grave goods is still open to debate.

**1748. TRACING THE ‘MUDAJJAN’: MEDIEVAL ISLAMIC MINORITY ORIGINS AND EVOLUTION THROUGH OSTEOLOGICAL, ISOTOPIC, RADIOCARBON, AND ADNA STUDIES IN TUDELA (SPAIN)**

**Contribution format:** Oral  
**Contribution authors:** Patxi Ramallo (Vrije Universiteit Brussel (VUB) | Max Planck Insitute of Geoanthropology, Jena) – Rodrigo Barquera (Max Planck Institute for Evolutionary Anthropology, Leipzig) – Oscar Sola Torres (—) – Maitane Tirapu De Goñi (Aditu Arkeologia) – Jesús Sesma Sesma – Jesús García Gazólaz (Dirección General de Cultura-Institución Príncipe de Viana) – Bart Lambert – Christophe Snoeck (Vrije Universiteit Brussel (VUB)) – Johannes Krause (Max Planck Institute for Evolutionary Anthropology, Leipzig) – Patrick Roberts (Max Planck Insitute of Geoanthropology, Jena)

Between 2019 and 2021, more than 300 tombs associated with the Mudéjar or Islamic community that lived under the rule of medieval Christian kingdoms on the Iberian Peninsula were discovered at Torre Monreal in Tudela (Navarre, Spain). This Maqbara (Islamic cemetery) represents the largest ever discovered within the territory of the medieval kingdom of Navarre (9th-16th centuries) and is one of the largest ever found in Spain. Our study presents the initial results of a comprehensive, multidisciplinary investigation that integrates osteological analysis, stable isotope data, radiocarbon dating, and ancient DNA (aDNA) research. By combining these methods, we have been able to establish biological profiles, assess health conditions, investigate aspects of genetic origins, and explored dietary changes over time, examining potential differences related to social status, gender, age, and comparing them to their Christian neighbors. All of this is contextualized through burial data (e.g., grave goods and burial types). This dataset enables us to trace transformations within the Mudéjar population during key historical events, including the Christian conquests of Tudela by the kingdoms of Aragon and Navarre in the early 12th century, their development as a minority between the 13th and 14th centuries, and their eventual disappearance by the early 16th century amid political, economic, and social upheavals.

**290. RELIGIOUS MINORITIES AND ZOOARCHAEOLOGY: HOW KOSHER FOSTERED IDENTITY IN MEDIEVAL JEWISH COMMUNITIES. SOME THOUGHTS ON IBERIAN RECORDS**

**Contribution format:** Oral  
**Contribution authors:** Ana Medina Cuesta – Marcos García García (University of Granada)

This paper examines the role of zooarchaeology in understanding Jewish communities of the Medieval Iberian Peninsula through dietary practices. It specifically investigates how kosher laws profoundly influenced social and cultural aspects of life at the time, as reflected in (but not only) archaeological animal remains. The analysis of animal bone assemblages from Jewish sites, with particular attention to the presence of species compliant with Jewish dietary laws—such as the prohibition against pork or rabbit— and the requirement for ritual slaughter and meat purging, illuminates the complex relationship between religious observance and daily life performance within medieval Jewish communities. Insights into these practices reveal the configuration of communal identity and the reinforcement of boundaries between Jews itself and their Christian and Muslim neighbours, encompassing factors such as kosher animal supply, the maintenance of appropriate slaughter and butchery practices, and even the experience of those individuals (mostly women) involved in daily cooking. Urban and frontier Jewish contexts will be used to support comparative analysis of dietary patterns across different regions of the Iberian Peninsula, highlighting zooarchaeological findings that emphasize the varying importance of maintaining religious activities. Ultimately, this work provides a window into the daily lives of Jewish populations who navigated complex interactions within a multi-faith society. In doing so, it contributes to a broader understanding of the intersection between food, identity, gender, territory and religion in medieval Iberia, laying a foundation with implications for the study of religious minorities in other historical contexts.



1616. LIVING IN A COMPLICATED NEIGHBORHOOD: STRONGHOLDS AND COMMUNITIES IN EARLY MEDIEVAL GALLECIA

Contribution format: Oral  
Contribution authors: Mario Pereiro Fernández (Universidade do Minho | Universidade de Santiago de Compostela)

The study of early medieval fortifications in Gallecia (actual Galiza) provides valuable insights into territorial control and its socio-political evolution throughout the period. In recent years, research in this field has deepened, highlighting the proliferation of these structures in the northwest of the Iberian Peninsula from the ninth century onwards, particularly in relation to elites and strategic defense points. Initially conceived for the domination and protection of specific areas, these constructions eventually became integrated into the administration of the landscape and the process of state formation. However, not all known fortifications conform to this framework. Some sites appear to diverge from these power dynamics, offering a unique opportunity to explore communities that operated outside the dominant structures. In times of political turmoil, these communities seem to have chosen fortification as a solution, either in the form of permanent settlements or as temporary defenses used during moments of pressure. The archaeological study of these settlements provides a deeper understanding of early medieval Galician society, particularly those groups whose historical presence was either forgotten or deliberately erased by prevailing powers.

813. NEIGHBOURS AND NETWORKS: CONNECTIONS BETWEEN TOWER HOUSES IN MEDIEVAL IRELAND

Contribution format: Oral  
Contribution authors: Sarah Kerr (University College Cork)

This paper introduces a series of tower houses built by the O’Driscoll clan in late medieval West Cork (Ireland). It uses archaeological, architectural, landscape and spatial evidence to argue that, rather than acting as discrete and self-sufficient settlements, the tower houses worked together as a network to aid the control of Ireland’s south-west coast. Two issues have limited our understanding of tower houses. Firstly, there are vast numbers (>3000) extant across the Irish landscape, with West Cork one of the most densely castellated areas. The extensive archaeological record has encouraged the typification of tower houses and resulted in various ‘types’ based on regional architectural differences. Secondly, tower houses are a variety of small castle. This categorisation has led to assumptions pertaining to the function and use of the tower house, such as being independent and defensive settlements. This paper argues that the tower houses discussed, previously described as the ‘West Cork type’, were not homogenous - rather each was unique. The distinctions are discussed to reveal that each tower house supported different daily practices and interactions. The network as a whole is investigated to demonstrate how each tower house had a distinct socio-economic function in the clan’s control and the maritime culture of the area. It will be set out that one example appears to have been the central node in the network with a serious of close neighbours performing subsidiary roles. It will be explained that only through the creation of intra-community dynamics could the clan control and manage the coastline. This allows a reconceptualization of the late medieval tower house and a deeper understanding of late medieval society.

793. INTRA-COMMUNITY DYNAMICS IN BRAGA BETWEEN THE 5TH AND 15TH CENTURIES: THE RELATIONSHIP BETWEEN THE CITY AND ITS HINTERLAND

Contribution format: Oral  
Contribution authors: Francisco Andrade (UAUM, Lab2PT, UMinho, IN2PAST) – Manuela Martins – Rebeca Blanco-Rotea (Lab2PT, UMinho, IN2PAST) – Maria Do Carmo Ribeiro (UAUM, Lab2PT, UMinho, IN2PAST)

The landscape of Bracara in Late Antiquity has as its main landscape reference the inevitable influence of the city on the entire surrounding region, where the villae, which brought together rural communities, were established as the main landscape references. With the establishment first of the Suevic kingdom, and later of the Visigoth kingdom, a new process of definition of the population centres began, which were now organised around Christian markers in the landscape (monasteries), and which materialised the process of conversion of the populations, promoted by figures such as Martin of Dume or Fructuosus of Braga. Many of them Christianised areas such as the villae and generated new communities that would be crucial in the formation of the Christian kingdoms of the northwest of the Iberian Peninsula. This was a logical consequence of the invasion by Muslim forces, which led to political destabilisation and population disorganisation. The local entities that remained in the region after the invasion seem to have favoured a structure based on higher and easily defendable sites. Its integration into the Asturian-Leonese kingdom provided the necessary border stabilisation for a full occupation of the territory of Braga, establishing new settlement patterns and reorganising the productive fabric and the basis of the natural relations of circulation between the city and the countryside, inherited from Roman times. However, urban life did not experience a re-establishment of the conditions of late antique times. The medieval communities in

Braga were guided by local and supra-local power relations, which were often conflicting, and the several steps of the asserting of the authority of the archbishop of Braga, based in the city, as the main holder of power over the surrounding communities of Braga that were under the archbishopric dependency.

575. MARGINAL YET MEANINGFUL: KERNAVĖ’S HISTORICAL TRANSFORMATION

Contribution format: Oral  
Contribution authors: Mindaugas Pilkauskas – Dovilė Baltramiejūnaitė (State Cultural Reserve of Kernavė)

Kernavė – a UNESCO-protected archaeological site of significant historical importance in Lithuania. Archaeological research at Kernavė has been conducted with a degree of consistency, primarily focusing on the earliest phases of habitation and the town’s medieval period of prosperity. This emphasis reflects broader trends in archaeology, where prehistoric and early historic periods often attract greater attention. In the context of Lithuania, the 13th–14th centuries were a formative era, during which Kernavė functioned as the earliest and one of the significant political, administrative, and cultural centers of the Grand Duchy of Lithuania. However, the attack and destruction of Kernavė by the Teutonic Order in 1390 marked the end of this period of prominence. In the aftermath, Kernavė was overshadowed by other emerging centers within the Grand Duchy and underwent significant transformation. It lost its political and administrative importance and was reorganized into a modest settlement resembling a small town. These limitations have contributed to a gap in the understanding of Kernavė’s post-medieval development. In 2023, the discovery of a 15th-century homestead complex, accompanied by accurately datable archaeological material, provided a crucial opportunity to examine the structural and spatial transformations of the settlement during this period. A synthesis of this new evidence with the findings from over four decades of archaeological investigations revealed notable changes in settlement organization. Socio-economic and institutional factors—including the establishment of a new church, which held land ownership rights, a state manor, and the development of a local town—were identified as key drivers of these spatial transformations. The case of Kernavė underscores the necessity of integrating previously overlooked material evidence to reconstruct the histories of communities that, although politically marginalized, demonstrated resilience and adaptation. This approach contributes to a broader understanding of settlement dynamics and socio-economic processes in the post-medieval context.

199 BENEFITTING PEOPLE AND PLACES: TOWARDS A ‘BEST PRACTICE’ MANIFESTO AND GUIDELINES SUPPORTING ARCHAEOLOGY AND ARCHAEOLOGISTS ASPIRING TO BENEFIT WIDER SOCIETY

Session theme: 6. Intertwining archaeology, heritage, and museums  
Session format: Workshop  
Session keywords: Public benefit, Public archaeology, Societal value, Heritage, Guidelines  
Session organisers: Carenza Lewis (University of Lincoln) – Fedir Androshchuk (Swedish History Museum) – Francesco Ripanti (Trinity College Dublin) – Christoph Rummel (Römisch-Germanische Kommission des Deutschen Archäologischen Instituts) – Almut Schulke (University of Oslo)  
Session speakers: Katharina Moeller (Chartered Institute for Field Archaeologists)

SESSION ABSTRACT

Archaeology has immense capacity to benefit wider society, and ensuring this capacity is both realised and recognised is important for the future of people, places and archaeology itself. This statement is self-evident and uncontroversial to most archaeologists, but many outside the sector are either unfamiliar with this wider social value of archaeology, or sceptical about it. To resolve this, we need to nurture good practice that will generate robust evidence and compelling stories to encourage policymakers, funders and practitioners to support policies and programmes that enable archaeology to benefit wider society. This is a key aim of the EAA Public Benefits of Archaeology Advisory Committee (PBAC). This workshop is organised by the PBAC to present, review and discuss emerging ideas about the principles and practices that inspire, constitute and characterise ‘best practice’ in publicly beneficial archaeology. These are being elicited in consultations throughout 2024-25 with a wide network of EAA ‘champions’ who are committed to achieving, disseminating, extending and promoting the benefits of archaeology to wider society. The aim is to develop a formal EAA ‘Public Benefits of Archaeology: Manifesto and Guidelines for best practice’ that will support, promote and propagate best practice across Europe and beyond. The 2025 workshop will begin with a review of the insights from the EAA consultations and a presentation of the draft Public Benefits Manifesto and Guidelines, which is being developed based on those consultations and EAA sessions exploring related material. The floor will then be open to workshop attendees to offer their thoughts, comments and suggestions. The aim will be that these inputs will enable the draft Manifesto to be developed in



Autumn 2025 into a final document able to inspire, guide and inform anyone interested in delivering, reporting, or finding out about the public benefits of archaeology, across Europe and beyond.

200 HUMAN-ANIMAL RELATIONSHIPS IN A CONNECTED NORTH ATLANTIC, AD 500-1500

Session theme: 2. Intertwined Epistemologies: Transcending the Data – Theory Divide  
Session format: Discussion session  
Session keywords: Human-animal relationships, North Atlantic, Animal Studies  
Session organisers: Helene Benkert (University of Iceland | University of Sheffield) – Grace Cesario – Kristin Robberstad Møller-Nilsen (University of Iceland) – Monica Nordanger Enehaug – Thomas Royle (Norwegian University of Science and Technology)

SESSION ABSTRACT

This session aims to explore the interconnectedness of the North Atlantic regions during the period AD 500-1500 through the lens of human-animal relationships. This period of growing globalisation and expanding connections transformed daily life and impacted human-animal relationships in a variety of ways. Seafaring, despite its challenges, turned the ocean into a connector rather than a divider, allowing for the exchange of people, goods, and knowledge as well as the spread of religion, technology, and culture. In turn, these exchanges had profound effects on the reciprocal relationships between humans and animals in their roles as food sources, companions, work animals, and more. Through a multidisciplinary lens, this session seeks to understand the changing dynamics of animals in human society, ranging from their immediate role in daily life to their more indirect impact via the environment. Using human-animal relationships as a focal point, this session will highlight how the North Atlantic connected people and regions and brought about economic and social change.

CONTRIBUTION ABSTRACTS

1998. EXPLORING CHANGING FISH USE IN NORTHEASTERN NORTH AMERICA THROUGH THE META-ANALYSIS OF ZOOARCHAEOLOGICAL DATASETS

Contribution format: Oral  
Contribution authors: Thomas Royle – Danny Buss (Norwegian University of Science and Technology) – Susan Andrews (IDBones) – Christian Gates St-Pierre (Université de Montréal) – Brad Hatch (Patawomeck Indian Tribe of Virginia) – Adam Heinrich (Monmouth University) – Gabriel Hrynicky (University of New Brunswick) – Helen Kristmanson (L’nuely) – David Landon (University of Massachusetts, Boston) – James Barrett (Norwegian University of Science and Technology)

A wealth of legacy zooarchaeological datasets containing information about the occurrence and abundance of fish taxa exist for Late Holocene sites in northeastern North America. The Eastern North American Synthesis is a ‘big data’ project (part of the wider European Research Council 4-OCEANS initiative) that seeks to compile these data into open-source databases and test socio-ecological hypotheses using data science methods. To date, the Eastern North American Synthesis database includes c. 200,000 identified fish bones from c. 600 assemblages across eighteen provinces, states, and territories in Canada and the United States. Through a series of case studies, this presentation will explore how this database can be used to explore regional-scale spatiotemporal variation in the taxonomic composition of fisheries in northeastern North America. These case studies will highlight how synthesizing fish bone records can provide novel insights about the effects of environmental change and human activities on varied fish taxa, including species currently listed as threatened or endangered. By shedding light on how past fish populations responded to climate change and exploitation, these data have the potential to provide insights into future trajectories of fish populations.

2225. FISH TRADE AND SETTLEMENT IN ARCTIC NORWAY

Contribution format: Oral  
Contribution authors: Monica Enehaug (NTNU University Museum - Norwegian University of Science and Technology) – Anja Niemi – Jørn Erik Henriksen (The University Museum, UiT - The Arctic University of Norway)

This paper presents preliminary result from an ongoing PhD project, exploring trade and trading routes to and from Trondheim. More specifically, fishbones from the following places: Trondheim, Andøya and Borgund. The

focus of this paper is the 2021 archaeological excavation that took place at Andenes on Andøya, located within the arctic circle of Northern Norway. The settlement itself can be traced back as far as to the Viking Age (800-1030CE), continuing into the Middle Ages and onwards. The settlement located here started out as a single farm, but later evolved into a fishing village. In the past, there has been several significant changes in Norway, both religious and economic. By using fish as a proxy, it is hoped that these changes will be possible to identify in the archaeological material, possibly providing clues to the development of this settlement. Special emphasis will be towards cod (Gadhus morhua), as it is a known Norwegian commodity in medieval international trade and the analysis of the fish bones is done through macroscopic species identification, assessment of element representation (head/body fragments) and size. This can contribute to trace commercial fishing activity, resource networks and network dynamics of the people who lived and worked at Andenes.

1115. FROM CETACEAN TO ARTEFACT: WHALE-BONE ANALYSIS FOR UNDERSTANDING EARLY COASTAL SETTLEMENTS IN ICELAND AND NORTHERN NORWAY

Contribution format: Oral  
Contribution authors: Valerio Punzi (University of Iceland | University of Oslo)

This project as part of my MA thesis explores cetacean exploitation in the early medieval coastal sites from the artefact perspective, by comparing Iceland and Norway. The choice to focus on these two regions is informed by recent literature highlighting links between Norway and the first Icelandic settlers in the 9th century CE. Laws, chronicles, and sagas provide us with a wealth of information on cetacean exploitation and whaling activities. Due to the late period of these written sources, their reliability is often questioned. Archaeology can help throw light on the subject. However, existing zooarchaeological investigations are inadequate, as they do not focus on the study of artifacts. For Iceland, we have only a series of archaeological reports or articles, in which objects are briefly recorded. In Northern Norway, comprehensive studies integrating recent investigations remain limited to Thorleif Sjøvold’s catalogue dating back to 1962 and 1974. Recent key contributions include Youri van den Hurk’s 2020 PhD research On the Hunt for Medieval Whales and Andreas Hennius’s 2023 work on Viking Age gaming pieces in Scandinavia, they provide a little overview on artefacts analysis. Online museum catalogues, such as sarpur (National museum of Iceland), or Unimusportalen (Norway) lack detailed documentation. My research will delve in the Viking Age and Medieval whalebone production and processing in Iceland and Northern Norway, trading and (and expansion of trade) in whale bone artefacts and insight into the impact on whales’ biodiversity and ecology in the Viking age and medieval North Atlantic settlements. By combining results from scientific analysis of assemblages (ZooMS, aDNA) and selected site reports, I will highlight the importance of whales in subsistence, trade, and social status, reflecting the communities’ organisation and adaptation to as well as the reliance on marine ecosystems in the arctic outlands and the earlier human-cetacean interactions.

1302. COMMENSAL RODENTS AND SETTLEMENT NETWORKS AROUND THE NORTH SEA AND NORTH ATLANTIC C.500-1500 CE

Contribution format: Oral  
Contribution authors: David Orton – Sarah Everett – George Ellison – Michelle Feider (University of York)

The dispersal of anthrodependent commensal rodents such as rats and mice is intrinsically linked to the emergence and evolution of human settlement networks. This paper explores those links in the context of the late Iron Age and medieval period around the North Sea and North Atlantic. First, we unpack the often vague associations between rats, mice, urbanism, and trade. Drawing on the foundational principles of island biogeography, we examine how changes in connectivity on the one hand, and in settlement characteristics such as size, density, and resource base on the other, are expected to interact to determine the dynamics of commensal rodent populations – and their visibility in the archaeological record. Next, we review the archaeological data for black rats, house mice, and other micromammals across the region, including new identifications and direct radiocarbon dates for some key finds. Several phases of expansion and consolidation are evident for each species, associated with developments in human demographics, settlement, and trade. We conclude by setting out key hypotheses for future research and considering the potential of formal population modelling, archaeogenetics, and geometric morphometrics on rodent remains to provide additional insights into Iron Age and medieval settlement ecologies.

2184. FASTING FROM MEAT IN THE EARLY MEDIEVAL IRISH SEA REGION: THE IMPACT OF THE ROMANO-BRITISH CHURCH

Contribution format: Oral  
Contribution authors: David Spiller (University of Reading | Truro and Penwith College)

Diet and fasting in the early Irish Church has seen considerable study, benefitting from a wealth of both documentary and archaeological evidence that is atypical of the place and period (Sexton, 2003; McCormick et al, 2014; Harney, 2016). Little attention, however, has been paid to the British derivation of fasting practices, demonstrated



through the transmission of the fasting restrictions attributed to Gildas in the penitential ascribed to Cummean. Placed in a context of a period in which people and ideas moved across the Irish Sea, transforming the region, this paper considers the Romano-British origin of Insular Church practices and the place of abstaining from meat in the context of early medieval British and Irish secular elite culture, drawing upon animal bone assemblages and the earliest Welsh and Irish secular poetic and prose texts. The relative liberality of Gildas’s penitent diet and its early Irish successors, excluding only meat and wine in all cases for the former and many cases for the latter, is noted, with the specific proscription on the consumption of animals explored. The paper argues that the tendency to identify abstinence from meat in the penitentials as ascetism (Follett, 2006) is overly simplistic. Monastic and elite secular sites on both sides of the Irish Sea are assessed in terms of animal bone assemblages. These sites are interpreted as centres of animal consumption, and fasting from meat is thus interrogated as exclusion from the norms of human-animal relationships. This contributes to perceiving how attitudes towards the consumption of animals spread across the Irish Sea region, and to understanding the early Cambro-Irish Church as a connected entity.

2228. SOCIAL (RE)STRUCTURING IN NORTHERN ICELAND – A ZOOARCHAEOLOGICAL PERSPECTIVE

**Contribution format:** Oral  
**Contribution authors:** Kristin Linnéa Møller-Nilsen (University of Iceland (HÍ)) – Ramona Harrison (University of Bergen (UiB))

This paper explores the social (re)structuring in and around the two neighbouring valleys Svarfaðardalur and Hörgádalur in the Eyjafjörður area in northern Iceland in the time period from initial Norse occupation through the Medieval period (c. 870-1500 AD). This time period is marked by several major events defining the era, none of which happened in isolation from the rest of the North Atlantic. Periods of immigration to the island, the religious conversion from Norse paganism to Catholicism around 1000 AD, and the waves of the Black Death in the 15th Century all left a mark on Icelandic society. Concurrently with this, or perhaps because of this, Icelandic society saw a shift from a seemingly egalitarian society from the initial settlement around 900 AD, to an increasingly stratified society by the end of the Middle Ages. By studying the zooarchaeological material from farm midden sites in the area, the goal is to identify changes in economic resource and subsistence use reflecting these adapting socioeconomic structures. This paper presents new results from analysis addressing these changes, comparing two different archaeological farm midden sites in Eyjafjörður: Staðartunga farm in Hörgádalur, and the church farm site of Miðgarðakirkja on Grímsey island. By comparing the data from the zooarchaeological analysis with historical data in Iceland and beyond, the purpose is to identify zooarchaeological markers reflecting factors acting upon society during this time and the role human-animal relationships have played in this. This study was undertaken as part of the project “Power, wealth and Plague in Two Valleys – Svarfaðardalur, Hörgádalur and their hinterlands ca. AD 870-1500” led by Árni Daníel Júlíusson (HÍ) and Ramona Harrison (UiB).

482. SVÍNASAGA: A STORY OF ICELANDIC PIGKEEPING FROM THE SETTLEMENT AND BEYOND

**Contribution format:** Oral  
**Contribution authors:** Grace Cesario (University of Iceland) – Kerry Sayle (SUERC)

Cattle and sheep are perhaps the most well-known of the Icelandic domesticates, but pigs were also brought over during the settlement of Iceland, yet they often receive less attention. However, it could be argued that pigs were more economically important than cattle and sheep in the very first decades of settlement. Due to their quick reproduction and omnivorous diet, pigs likely played a pivotal role in supplying the new settlers with sustenance while the other animal herds were allowed to grow. Along with other domesticates, pigs appear in the earliest zooarchaeological assemblages in Iceland. However, unlike cattle, sheep, and horses, pigs become uncommon around AD 1200, though they never seem to fully disappear. This paper will discuss the results of isotopic analysis of pig bones from settlement (AD 877) to AD 1500, in order to understand their diet. The pig remains come from sites across Iceland, of varying size and status. A survey of placenames relating to pigs, including the environmental conditions surrounding the named areas, will also be explored. Pulling these data sources together will tell the story of pigs—how they were fed and kept, what purpose they may have served, and how they made their mark on both the physical environment and social memory.

1679. DIETARY RESTRICTIONS THROUGH THE ZOOARCHAEOLOGICAL LENS - MONASTIC ICELAND AND BEYOND

**Contribution format:** Poster  
**Contribution authors:** Helene Benkert (University of Iceland | University of Sheffield) – Steinunn Kristjánsdóttir (University of Iceland)

Dietary restrictions based on societal or religious perceptions are not an uncommon phenomenon in human history. Horse meat, for example, was considered taboo in various times and cultures and was subject to a number

of papal bans throughout the Middle Ages. The Benedictine Rule prohibited the consumption of four-legged animals for all but the weak and sick. However, such restrictions and prohibitions often were adapted in favour of availability and practicality of food resources, as well as simple preferences for specific meats. This poster illustrates how religious dietary rules were observed in medieval Iceland, in particular at the monastic houses. Using zooarchaeological analysis, it highlights which animal products were consumed during the Middle Ages on the island, where resources were scarce, and how it conforms or contrasts with monasteries on the mainland. This study was undertaken as part of the project ‘Between Man and Nature – The Making of Benedictine Communities in Medieval Iceland’ led by Steinunn Kristjánsdóttir and James G. Clark.

201 BIOLOGICAL AND SOCIAL ASPECTS OF INFECTIOUS DISEASES IN THE COMMON ERA: FROM CASE STUDIES TO POPULATION-BASED STUDIES

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Regular session  
**Session keywords:** Infectious diseases , Common Era, pathogenic microorganisms, pandemics, epidemics  
**Session organisers:** Ksenija Djukic – Veda Mikasinovic (Center of Bone Biology, Faculty of Medicine, University of Belgrade) – Mario Novak (Centre for Applied Bioanthropology, Institute for Anthropological Research, Zagreb | Faculty of Humanities, University of Primorska) – Tamás Hajdu (Department of Biological Anthropology, Institute of Biology, Eötvös Loránd University)

SESSION ABSTRACT

Infectious diseases represent illnesses caused by harmful pathogenic microorganisms, such as bacteria, viruses, parasites or fungi. Today they are the second leading cause of death worldwide, however, in the pre-antibiotic era they were difficult to stop and, as such, they probably represented the greatest threat to human health. Often causing very high rates of morbidity and mortality, infectious diseases could be recognised as the crucial accelerators for some of the most catastrophic scenarios in human history. Although there is no doubt that morbidity and mortality are the most important consequences, infectious diseases often generated devastation of ancient communities at a social, economic and population level. By conducting a careful study of the causes, the traces they leave on the bones, the method by which they are spread and stopped, we are able to better understand not only the biological aspects but also the social consequences of the diseases. A better understanding of the spread and containment of infectious diseases in the past will not only clarify our understanding of ancient communities but it could also elucidate our perspective of using ancient disease knowledge as an emerging tool for infectious disease research even. The main goal of this session is to bring together researchers dealing with different aspects of infectious diseases in the past. We will aim to enhance our understanding based on previous research, as well as pave the way for fresh perspectives in the research of ancient infectious diseases. This interdisciplinary and multidisciplinary session will welcome case studies from across the globe as important parts of a broader puzzle, as well as population-based studies as tools for building a broader scientific consensus.

CONTRIBUTION ABSTRACTS

792. THE „SICK CEMETERY” OF AQUINCUM – BIOARCHAEOLOGICAL ANALYSIS OF PÓK – NÁNÁSI - VÁROSFAL STREET SITE (AD 3-4TH CENTURIES)

**Contribution format:** Oral  
**Contribution authors:** Krisztián Kiss (MTA-BTK Lendület Momentum Bioarchaeology Research Group | HUN-REN Research Centre for the Humanities, Institute of Archaeogenomics | Institute of Practical Methodology and Diagnostics, University of Miskolc | Department of Biological Anthropology, Eötvös Loránd University) – Anikó Kecskés (MTA-BTK Lendület Momentum Bioarchaeology Research Group | HUN-REN Research Centre for the Humanities, Institute of Archaeogenomics) – Orsolya Mateovics-László (MTA-BTK Lendület Momentum Bioarchaeology Research Group | Archäologischer Dienst GesmbH, St. Pölten) – Orsolya Láng (MTA-BTK Lendület Momentum Bioarchaeology Research Group | BHM Aquincum Museum and Archaeological Park) – Ibolyka Dudás – Ádám Békésy-Szabó (Medical Imaging Centre, Semmelweis University) – István Major (Isotoptech Ltd. | Institute for Nuclear Research) – Balázs Gusztáv Mende – Anna Szécsényi-Nagy (MTA-BTK Lendület Momentum Bioarchaeology Research Group | HUN-REN Research Centre for the Humanities, Institute of Archaeogenomics)



Aquincum, as the capital of the Roman province called Pannonia Inferior was inhabited by a mixed population of Romanized Celtic and Illyrian tribes, as well as by the immigrants of the Roman Empire itself. Today’s Budapest area has yielded several archaeological sites belonging to the military installations, military and civil towns, and also to the villa estates. The Pók-Nánási-Városfal street site is located Northeast of the Civil Town of Aquincum, not far from the settlement’s eastern cemetery called Gas Factory cemetery. Based on the peripheral position of the graves both to the Civil Town and the town’s eastern cemetery the results (dwarfism, signs of infections and hard physical work) of the former paleopathological analysis performed by Éva Tankó the cemetery acquired the nickname of „sick cemetery” not excluding the possibility that individuals who were marginalized by society were buried here. The cemetery was now re-analyzed based on new anthropological and paleopathological methodologies by the Lendület Momentum Bioarchaeology Research Group. Of the 33 examined individuals five showed skeletal signs of infections which we would like to present by a complex bioarchaeological approach including paleoradiological examinations. This research was supported by the Hungarian Academy of Sciences through the Momentum Bioarchaeology Research Group.

**1070. POSSIBLE CASES OF SALMONELLA ENTERICA INFECTION IN A LATE ANTIQUE RURAL POPULATION FROM BELI MANASTIR, CROATIA**

**Contribution format:** Oral  
**Contribution authors:** Mario Novak (Institute for Anthropological Research, University of Primorska) – Mario Carić (Institute for Anthropological Research) – Kennet. Tremblay (University of Central Florida) – Tomislav Hršak (Archaeological Museum Osijek) – Marko Dizdar (Institute of Archaeology) – Orhan Efe Yavuz – Maria Spyrou (University of Tübingen) – Cosimo Posth (University of Tübingen | Max Planck Institute for Evolutionary Anthropology)

During 2020, the Archaeological Museum of Osijek and the Institute of Archaeology conducted protective archaeological excavations of the site AN 2 Beli Manastir / Staro selo on the route of the bypass of the town of Beli Manastir in Osijek-Baranja County, eastern Croatia. The period of Late Antiquity is represented by the remains of a settlement and a cemetery located next to it. In the western part of the site, a cemetery with 26 graves dated to the 4th century CE was investigated. Rectangular inhumation burials contained a number of items of costume and jewelry, ceramic and glass vessels as well as coins, thus confirming the dating of the cemetery. Of particular interest are burials G10 and G26. G10 contained skeletal remains of an adult female while G26 contained the remains of an adult male individual. Both skeletons did not exhibit any signs of infection, just some “usual” pathological changes such as caries, Schmorl’s nodes, etc. Ancient pathogen DNA analysis of teeth samples from these two graves (BEMA005 and BEMA006) showed they are potentially positive to Salmonella enterica, a species of invasive gastrointestinal pathogens that infects both animals and humans. Pathogenic S. enterica are introduced into the human body via the gastrointestinal tract by ingestion of contaminated food, such as water, fish, meat, poultry, egg, milk, vegetables, and fruits. Most people infected by S. enterica develop diarrhea, fever and abdominal cramps, but it can also result in a severe dehydration while life-threatening complications may develop if the infection spreads beyond the intestines. Genomic capture that will follow should assess the phylogenetic placement and possible modes of transmission of S. enterica in this rural community but should also provide new important information about the general health of the inhabitants of this region during the Late Antiquity.

**1394. TRACING INFECTION IN THE PAST: THE ASSOCIATION BETWEEN PERIOSTITIS AND CRANIAL POROTIC LESIONS IN AN AVAR-PERIOD NECROPOLIS (SERBIA)**

**Contribution format:** Oral  
**Contribution authors:** Veda Mikasinovic (Center for Forensic and Applied Molecular Genetics, Faculty of Biology, University of Belgrade | Centre of Bone Biology, Institute of Anatomy, Faculty of Medicine, University of Belgrade) – Ksenija Djukic (Center for Forensic and Applied Molecular Genetics, Faculty of Biology, University of Belgrade)

This study analyses the distribution of periostitis, one of the most common non-specific skeletal indicators of infectious disease, and its correlation with cranial porotic lesions (PLs), specifically cribra orbitalia (CO) and porotic hyperostosis (PH). In paleopathological literature, periostitis is defined as inflammation of the periosteum, the main causes of which may be trauma or infection. This study focuses solely on cases where periostitis is present in the absence of traumatic injuries. Cranial PLs in the archaeological record are generally considered markers of poor health, often associated with unfavourable living conditions or periods of physiological stress, as well as with the diseases of the hematopoietic system. The osteological sample originates from Site 40, Potes Gornje Sajlovo (Serbia), dated to the Middle and Late Avar periods (7th–9th century CE). A total of 199 individuals from 197 graves were analysed, comprising 47 (23.6%) males, 48 (24.1%) females, 90 (45.2%) non-adults, and 14 (7.0%) adults of unestimated sex. Periosteal reactions were identified in 16 individuals, primarily affecting the long bones. In most cases, the periosteal lesions were healed, while active periostitis was observed in five individuals (2 non-adults, 2 males and 1 female). Cranial PLs were present in 72 individuals (36.2%), with CO identified

in 63 cases and PH in 43 cases. Active lesions on the orbital roof were noted in only five individuals. The simultaneous presence of CO and PH was recorded in 15 cases. Correlation analysis between periostitis and cranial PLs revealed a statistically significant but weak correlation, suggesting a complex relationship between these skeletal markers. However, statistical significance was observed when analysing the combined PL variables (CO and PH together) with periostitis, indicating a stronger association when considered together.

**2462. THE PRESENCE OF TUBERCULOSIS IN FOUR PARISH CEMETERIES WITHIN THE DANISH MEDIEVAL TOWN VIBORG**

**Contribution format:** Oral  
**Contribution authors:** Dorte Pedersen (Unit of Anthropology (ADBOU), University of Southern Denmark)

This study takes on a microenvironmental approach to the study of tuberculosis (TB) in medieval Denmark. Bone involvement patterns and frequency of disease are explored in skeletons from four parish cemeteries located in a restricted geographical area in the Danish town Viborg dated ca. AD 1100-1550. Six skeletal lesions indicative of TB (rib pleural surface, ventral vertebral body, lateral body of ilium, acetabular fossa, ilium auricular surface and ulna olecranon process) following the method by Pedersen et al. 2019, were recorded in 341 adult skeletons from the cemeteries of Sct. Drotten, Sct. Mathias, Sct. Morten and Sct. Mikkel. Individual probability of TB was assessed using a probabilistic approach considering the six indicator’s sensitivity and specificity measures (Pedersen et al. 2019). The population frequencies of TB, that is, the prevalence of disease in the mortality sample, was modelled for each cemetery from the individual probability of having the disease. Significant differences in both patterns of bony involvement and population frequency of TB between the cemeteries were found. Sct. Drotten stands out with a point population frequency of 0.69 (CI 0.43-0.87) compared to the other cemeteries with frequencies ranging between 0.11 and 0.42 (CI). The modelled frequencies correspond to 53 of 89 (Sct. Drotten), 22 of 97 (Sct. Mathias), 13 of 122 (Sct. Mikkel) and 3 of 33 (Sct. Morten) with likely TB diagnosis. For all cemeteries but Sct. Morten individuals with a likely TB diagnosis survived longer than those without TB. This is especially evident in the Sct. Drotten that in general outlive their fellow town dwellers in other parishes. These are archaeological samples and preservation and also small samples sizes may affect the results. However, social stratification between the different parishes may also be a likely explanation of the differences seen in the patterns of TB and associated mortality profiles.

**1364. A CASE STUDY OF JUVENILE OSTEOMYELITIS FROM MEDIEVAL SERBIA**

**Contribution format:** Oral  
**Contribution authors:** Dragana Vulovic (Institute of Archaeology, Belgrade) – Ksenija Đukić (Faculty of Biology, University of Belgrade) – Nataša Miladinović-Radmilović (Institute of Archaeology, Belgrade)

The late medieval necropolis of Dublje Iznad Kuće is located about 250 m west of The Church of the Holy Apostles Peter and Paul, in Novi Pazar, Serbia. Archaeological excavations took place from 2017 to 2020; on that occasion, 166 graves were discovered. The anthropological analysis of the skeletal remains from this site showed that infectious diseases were not so common in this population; however, one skeleton caught our attention. In grave no. 146, the skeletal remains of a juvenile male individual were discovered. During bioanthropological analysis, we observed several pathological changes (such as periostosis and maxillar sinusitis), but the most notable pathology condition was progressive osteomyelitis on the medium and distal part of the right femur, followed by probable septic arthritis on the distal end of the right femur, the proximal end of the right tibia, and on the right patella. Periosteal lesions are also visible on the lateral side of the right tibia, indicating that infection has spread to that part of the body. Osteomyelitis is a progressive bone infection accompanied by inflammatory destruction, necrosis, and new bone formation, involving one or more regions of the bone and the surrounding soft tissue. This infection is the result of the introduction of pyogenic bacteria, viruses, fungi, and multi-celled parasites into the bone. In this presentation, we will focus on this infectious disease, the possible causes of this infection, and what this person’s life might have been like.

**1253. SKELETAL EVIDENCE OF INFECTION IN ORTHODOX MONKS FROM THE STUDENICA MONASTERY CEMETERY (SERBIA)**

**Contribution format:** Oral  
**Contribution authors:** Ksenija Djukic – Veda Mikašinović (Center for Forensic and Applied Molecular Genetics, Faculty of Biology, University of Belgrade) – Petar Milenković (Ars Medica, Belgrade)

Between the 14th and 17th centuries, Serbia experienced a turbulent period marked by both internal and external political struggles, wars, and recurrent health crises, including famines and epidemics. These crises affected not only the general population but also the elite and monastic communities. This study presents skeletal evidence of infectious diseases and their patterns in the Orthodox monastic cemetery of Studenica Monastery, a 12th-century



monastery located in the Raška district of Central Serbia. In 2022, protective archaeological excavations were conducted within the yard of the currently active monastery, uncovering 62 graves, dated between the 14th and 17th centuries, and classified into four burial horizons. Bioanthropological and paleopathological analyses were conducted in 2024, revealing 86 individuals (87% male, 3.5% female, and 9.5% of unknown biological sex). All individuals were adults (aged 18 and older), except for one adolescent (16–18 years old) and two children. Approximately 30% of the individuals exhibited skeletal evidence of infectious diseases, with variations in infection patterns across burial horizons. The most frequently observed pathological condition was periostitis, primarily affecting the lower limbs (tibiae and fibulae). Additionally, two individuals exhibited skeletal changes indicative of tuberculosis, including lytic lesions in the cranial vault and the lower thoracic and upper lumbar vertebrae. Furthermore, two cases of extensive osteomyelitis were also identified. The investigation of skeletal material discovered from the aforementioned monastery yard gives us a unique opportunity to look closely into the everyday life of the monastic community. The comprehensive bioanthropological and paleopathological investigation of an orthodox monastic cemetery in Europe has not been conducted thus far.

**2108. MARGINALIZATION, INFECTION OR OUTCAST: WHAT’S UP WITH THE MEDIEVAL GRAVE 43 OF THE MILAVIĆI SITE IN BOSNIA AND HERZEGOVINA?**

**Contribution format:** Oral  
**Contribution authors:** Monika Milosavljevic (University of Belgrade) – Saša Čaval – Lucija Grahek (ZRC SAZU, Slovenia) – Brina Zagorc (University of Vienna . ZRC SAZU, Slovenia) – Krish Seetah (Stanford University)

Among the numerous stećci graves excavated in Bosnia and Herzegovina, grave 43 from Milavići in Dabarsko polje stands out. The grave from a communal cemetery with over 390 stećci tombstones dated from 12th to 16th century, was located within a Late-antique basilica (4th-5th century), beneath a large, decorated stećak. This non-normative burial, with the skeleton discovered in a prone position, is atypical for the time and place. While grave 43 is of an adult, highly likely female and is the most non-normative, it does not stand alone as atypical. It resembles the medieval burials from a nearby transhumant station in Busovača, Nevesinje, and a reclaimed prehistoric mound at Baljci, Bileća. Given the importance of proper burial treatment in medieval Christian communities, such a deviation is particularly noteworthy. Non-normative burial practices may indicate collective social anxiety and tensions. The interpretative possibilities considered range from the hypothesis that the individual was marginalized within their community to a reaction to death from an infectious disease. Against this murky backdrop, bioarchaeological analysis, aDNA pathogen analysis, and archaeothanatological examination are currently underway and shall be completed within the forthcoming months to test these hypotheses. This comprehensive approach will be complemented by a comparative study with other stećci burials associated with suspected infectious diseases. With this presentation, we aim to demonstrate how individual cases are able to provide new perspectives on the broader interpretation of medieval societies through the intersection of biological and social facets. In such cases, the exploration of the non-normative sheds light on the social reaction of the community to the unfamiliar and the unusual.

**951. IDENTIFYING EPIDEMIC EVENTS IN SKELETAL RECORDS: A DEMOGRAPHIC APPROACH**

**Contribution format:** Oral  
**Contribution authors:** Tamás Szeniczey – Tamás Hajdu (Eötvös Loránd University)

Infectious diseases and epidemic outbreaks have profoundly shaped human populations throughout history, influencing demographic structure and social organization. Nonetheless, assessing their impact on past populations presents significant challenges. Paleopathological analysis often fails to detect infectious diseases due to the lack of pathognomic skeletal markers, while age-at-death estimation and sample size introduce additional uncertainties, confounding the evaluation of mortality patterns at the population level. These limitations hinder our ability to identify catastrophic mortality events with confidence. Parametric models of mortality offer a potential solution to this demographic problem by smoothing and correcting variation in age-specific mortality that is produced by small sample sizes and broad age categories. By modelling expected mortality trajectories of catastrophic events and stable populations, then comparing them with mortality patterns obtained from osteological data, it is possible to identify variations that could indicate epidemic-induced mortality peaks. Combining such models with historical data creates a valuable proxy for recognizing past health crises, allowing us to compare statistically derived mortality trends with osteological evidence. This study applies hazard models to Avar Period skeletal populations (represented by 1413 individuals) to assess potential epidemic-related mortality shifts. Integrating demographic modeling with bioarchaeological data provides a novel approach to identifying mortality patterns potentially influenced by epidemics, contributing to broader discussions on health in early medieval populations. This project has received funding from the Hungarian Research, Development and Innovation Office (PD 146612).

**203 FORTIFIED BY NATURE, PROTECTED BY WATER: COMPARING FORTIFICATIONS ON NATURAL AND ARTIFICAL ISLANDS IN LAKES THROUGH THE AGES**

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** fortifications, islands, lakes, lake settlements,  
**Session organisers:** Timo Ibsen (Leibniz-Zentrum für Archäologie (LEIZA)) – Jānis Meinerts (Latvian Academy of Culture)

**SESSION ABSTRACT**

Human habitation on natural islands in Europe dates back to “the dawn of time.” Around the 6th millennium BC, communities began constructing lake settlements on stilts and artificially raised platforms, which in some cases evolved into fortified settlements or even strongholds. Both enhanced natural or artificially built fortified islands served as (physically or symbolically) protective bastions during conflicts, providing a strategic advantage and leveraging natural, sometimes modified, water barriers to deter invaders and protect inhabitants and their goods. Fortified lake settlements built on artificial platforms and fortifications made of wood, earth, or stone on natural islands in lakes have typically been examined as distinct phenomena, with little comparative analysis of their location, accessibility, function, and the physical structure of their defences. Despite being well-known and extensively studied in European archaeology, many questions about both types of these intriguing remnants of early human ingenuity and adaptability remain unanswered. When and why did the need for fortifications arise on natural islands? At what point can we classify lake settlements as fortified sites with defensive or military functions? Why and where did early communities prefer this isolated (semi-)insular location to “regular” strongholds, which existed at the same time in the surroundings? Does a diachronic comparison of both types of water-related fortifications offer new approaches to the study of these phenomena? This session seeks to bridge the current research and interpretation gap and invites papers that: (1) explore specific questions related to the fortification systems of insular sites and fortified lake settlements; (2) compare various fortified sites under insular conditions; (3) provide insights into the reasons for fortifying these sites, their functions, and their roles within broader settlement patterns; and (4) present relevant case studies spanning from Prehistoric to Medieval times across Europe.

**CONTRIBUTION ABSTRACTS**

**1611. CONNECTIVITY IN ISOLATION - ISLAND COMMUNITIES IN GREATER POLAND – CASE STUDY KOMOROWO**

**Contribution format:** Oral  
**Contribution authors:** Jan Romaniszyn (Adam Mickiewicz University in Poznań) – Daniel Brüggemann – Sarah Bäumler – Ercan Erkul (Kiel University) – Mateusz Jaeger (Adam Mickiewicz University in Poznań) – Jutta Kneisel – Oliver Nakoinz (Kiel University) – Jakub Niebieszczański – Witold Szambelan (Adam Mickiewicz University in Poznań) – Dennis Wilken (Kiel University)

The present paper investigates the site of Komorowo with its island in the Lake Bytyń, with a focus on the fortifications present at the location. Two of the larger islands are fortified in different periods of prehistory and history, with the oldest traces of a fortified place being the Iron Age settlement of the ‘Biskupin type’, whose unique location on an island sets it apart from other fortifications of that period. On another island, just hundreds of metres apart, the remnants of an early medieval circular rampart were found. Such a structure is not uncommon during the early medieval period, as evidenced by other examples in Ostrów Lednicki. A further circular rampart was constructed on the foundations of the Iron Age rampart, and is believed to represent the most recent fortification. Recent geophysical research on the lake, in conjunction with research diving, has confirmed the presence of a bridge connecting the island to the mainland. The dating of the timbers to the 15th century is likely to belong to the most recent fortification. The site’s significance transcends its role as a fortification, extending to its importance in trade and exchange during all three periods. The Iron Age settlement, in particular, was a pivotal nexus for trade, facilitating the exchange of amber from the rich eastern regions and luxury goods from the alpine areas of the southern continent. The Slavonian fortress, situated along a major trade route connecting Poznań with the western Ottonian sphere, further underscores the strategic importance of the area during this period. This article aims to provide a comprehensive overview of the various fortifications at the Komorowo site, with a focus on elucidating their function within the respective time periods.



1184. FORTIFIED AND UNFORTIFIED ISLAND SITES OF THE SLAVIC MEDIEVAL PERIOD IN NORTH-EASTERN GERMANY

Contribution format: Oral  
Contribution authors: Lukas Goldmann (Brandenburgisches Landesamt für Denkmalpflege und Archäologisches Landesmuseum)

The landscape of the northern lowland of Germany is characterised by numerous lakes and waterways formed during the Pleistocene era. Many of these inland waters – particularly those situated between the Elbe and Oder rivers – contain islands of varying size, many of which are suitable for human settlement throughout the ages. However, statistical analyses of the known sites on these islands show a clear predominance of sites from the early or so-called Slavic Middle Ages. Field surveys, excavations and underwater archaeological research show that these sites had a variety of functions including trade, production and religion as well as control and defence. In view of the conflict-ridden early and high medieval history of the region the above-average use of islands during this period appears to be a reaction to increased military pressure. Many slavic island sites show remains of typical strong walls made of earth and wood, which are also known from contemporary fortifications, in other locations but new archaeological data may indicate that islands did not necessarily need such elaborate defences and may often have been a place of retreat for the common people.

1307. FORTIFIED LAKE-SETTLEMENTS OR LAKE-CASTLES? INTERPRETING 8TH-11TH CENTURY AD LAKE-SETTLEMENTS IN NORTHERN LATVIA

Contribution format: Oral  
Contribution authors: Janis Meinerts (Latvian Academy of Culture)

From late 1950s to early 1970s, the pioneering Latvian underwater archaeologist Jānis Apals surveyed more than 100 waterbodies and discovered 10 lake-settlements in the lakes of Northern Latvia. Excavations conducted in two of these sites – in Ušurs lake-settlement and Āraiši lake-settlement – proved that they were built and inhabited by the Baltic Latgallian tribe during the period between 8th to 11th century AD. The extensive excavations in Āraiši, that spanned for 10 seasons and completely excavated about ¾ of the site, revealed well preserved wooden building remains and gave an insight of unprecedented quality into the architecture and economics of a Viking Age Latgallian lake-settlement. This rich material later became the basis for an in-situ full-scale reconstruction of the settlement. One of the more controversial aspects connected to the interpretation of these sites is the level of their fortification – J.Apals, citing the similarities of Āraiši lake-settlement to contemporary Baltic hillforts (oral tradition, fortifications, type of society inhabiting the site), from 1969 onwards systematically used the term “lake-fortress” (Latvian “ezerpils”) to describe all ten of the known sites and likened their role and status in the settlement pattern to that of hillforts. This paper will aim to investigate the meaning of the term lake-fortress introduced by J. Apals by looking into the arguments put forward by him and interpreting it in connection with the ideas about the roles of hillforts and other types of settlements prevalent at the time and currently. Special attention will be given to the type of fortifications unearthed in the extensively excavated Āraiši site and the settlement patterns in the local micro-regions around both Āraiši and the other nine known Latgallian lake-settlements.

727. FORTIFICATION STRUCTURE AND SETTLEMENT BACKGROUND OF AN ISLAND ON LAKE OSTROWITE (NORTHERN POLAND) IN THE 11TH-14TH CENTURIES

Contribution format: Oral  
Contribution authors: Jerzy Sikora (University of Lodz)

About 2 km north-east of the village of Ostrowite in northern Poland (Chojnice commune, Pomerania province) is a lake now called Ostrowite. Medieval documents refer to it as the Forest Lake. In the 19th century, numerous legends were recorded about the area, describing the first Christian settlement in Pomerania, which occupied the island, and the leather (!) bridge that was said to lead to the island. Excavations carried out in 1993-1996 and 2000-2024 confirmed the presence of traces of a rich medieval settlement both on the island and on the lake shore. Its beginnings are marked by the establishment of an inhumation cemetery on the eastern shore at the beginning of the 11th century. Burial rites indicate an adaptation of the Christian way of burying the dead, since the traditional Slavic burial was exclusively cremation. At the same time, a settlement was established on the island, initially with structures interpreted as relics of pre-Christian religious activity. The island itself was protected by a moat. In the 12th century, there was a significant change in the defensive structures. The moat was filled in. A wooden bridge leading to the island was built (dendro dates: 1160 AD), together with a ring fort blocking the entrance to the island, in order to control traffic. Excavations have revealed many traces of trade and the import of goods. The whole complex lasted until the beginning of the 14th century. The functioning of the settlement complex will be discussed against the background of other similar settlement island complexes in the area of the north-western Slavs, especially in Pomerania, where they are mainly documented for the period between the 9th and 13th centuries. The changes in the spatial organisation and the changing approaches to the fortification

of the island will be highlighted.

2152. THE ARCHAEOLOGY OF KAUPRE – AN ISLAND FORTIFICATION IN THE DAUGAVA RIVER

Contribution format: Oral  
Contribution authors: Timo Ibsen (Leibniz-Institute for Archaeology (LEIZA/ZBSA)) – Agnese Čakare (Faculty of Humanities, Institute of Latvian History, University of Latvia) – Vanda Haferberga (Faculty of Humanities department of History and Archaeology, University of Latvia) – Jens Schneeweiß (Leibniz-Institute for Archaeology (LEIZA/ZBSA)) – Piotr Kittel (University of Lodz, Faculty of Geographical Sciences)

The hillfort Kaupre represents a unique fortification, distinguished by its placement on an in-channel island within the Daugava River in Latvia. The island, rising 7–8 meters above the river, features a fortified settlement enclosed by two linear ramparts, securing a plateau at its northern end. Previous archaeological surveys identified a Late Iron Age burial ground on the island, though its relationship with the fortified settlement remained unclear. Recent investigations conducted in May 2023 in the framework of the project “Interdisciplinary Hillfort Studies at the Daugava River: Merging and Decoding Archaeological, Environmental and Linguistic Data (INHILLDAUGAR)”, including test pits and core drilling, have begun to clarify the site’s occupation history and environmental history. The recent excavations on the plateau within the enclosed area revealed a substantial dark archaeological layer, associated with an Early Iron Age occupation. This layer extends towards the main rampart, indicating contemporaneous construction with the occupation layer. This 3 m high main rampart, primarily composed of sand and stones without timber reinforcement, suggests a deliberate fortification effort. A second rampart, highly unusual due to its stone construction, features large erratic blocks at its base with a dolomite fill. The function and chronology of this second rampart remains unresolved, although it may have been built synchronously with the main rampart. Further complexity arises from the discovery of medieval and early modern artifacts, indicating a prolonged occupation history. Overbank fluvial deposits stratified above the archaeological layer suggest a dynamic environmental context affecting the site’s development. The lecture presents the results of recent field research on Kaupre and serves as an example of a fortification on a natural island in a river.

2481. IRON AGE FORTIFICATIONS AS ISLAND ARCHAEOLOGY – CURRENT RESEARCH ON THE ISLAND OF ÖLAND IN THE BALTIC SEA

Contribution format: Oral  
Contribution authors: Ludvig Papmehl-Dufay (Dept. of Cultural Sciences, Linnaeus University)

In this presentation, research carried out within the eight-year research program “Crisis, conflict and climate: societal change in Scandinavia 300–700” will serve as a starting point for a discussion of how Iron Age fortifications can be studied in an Island Archaeology perspective. The Baltic island of Öland is one of the most archaeologically productive regions in Scandinavia, well-known not least for its wealth of Iron Age remains including some 15 ringforts (e.g. Eketorp, Sandby borg), innumerable burial grounds and the uniquely well-preserved remains of hundreds of open settlements with visible house foundations and stone fences. In the research program, the Iron Age ringforts on Öland are illuminated through data on demographics, diseases, climate and environment, politics and social change to create a coherent understanding of their construction, use and abandonment. In this presentation, their insular characteristics are brought to attention, concerning both their broader geographic setting as well as insularity as seen in their physical separation in space and the metaphysical connotations this might entail.

1417. AN ISLAND OF FORTIFIED ISLANDS - TOPOGRAPHIES AND LONG-TIME BIOGRAPHIES OF BORNHOLM’S FORTIFICATIONS

Contribution format: Oral  
Contribution authors: Sofie Laurine Albris (National Museum of Denmark)

The FORTIS Project, running 2023-2027, investigates the prehistoric fortifications of the island of Bornholm aiming to gather and upgrade our knowledge about the forts. As a rocky island with good overview of the Baltic Sea, Bornholm in itself can be seen as a fortress, nevertheless the population in some periods may have been vulnerable to attacks, and therefore constructed fortifications. An evaluation of Bornholm’s six known prehistoric forts has shown that they all exploited topography in similar ways, being placed on high plateaus above lakes, bogs or in river bends. All the known fortifications show signs of being used in various phases through the periods of history and prehistory, indicating how the topographical settings played a major role in the activities at the sites, which may have been social and religious centres as well as providing protection. The paper gives and overview of the research status of the forts and the approach and progress of the FORTIS-project.



204 FROM CODE TO CULTURAL HERITAGE: ADVANCING AI INTEGRATION IN ARCHAEOLOGY

Session theme: 3. Exploring methods in research, education and communication  
Session format: Regular session  
Session keywords: Artificial Intelligence, GenAI, cultural heritage, Machine Learning, Computer Vision  
Session organisers: Hannah Ringheim (The Swiss Federal Institute of Technology (ETH)) – Gabriele Gattiglia – Francesca Anichini (University of Pisa) – Holly Wright (University of York)

SESSION ABSTRACT

Artificial Intelligence (AI) is reshaping the landscape of archaeology and cultural heritage preservation, offering transformative possibilities in data analysis, discovery, and preservation. However, its application in archaeology is hindered by challenges such as fragmented datasets, ethical concerns, and the complexity of integrating advanced technologies. In this framework, it is worth mentioning the Managing Artificial Intelligence in Archaeology COST Action (CA23141), which addresses these issues, fostering interdisciplinary collaboration among archaeologists, computer scientists, and heritage professionals to develop AI tools that enhance data collection, analysis, and interpretation. This session aims to explore the latest advancements in AI-driven technologies, such as machine learning, computer vision, and generative AI, showcasing their applications in uncovering and preserving the past. From analysing satellite imagery to locate undiscovered sites to reconstructing damaged artefacts and simulating ancient environments, AI is reshaping archaeology and cultural heritage preservation. The session also addresses critical ethical considerations, including transparency, bias, cultural sensitivity, and digital preservation. Ensuring that AI outcomes are understandable and trustworthy is vital, particularly when these tools influence decisions about cultural heritage. Human oversight remains essential to maintaining accountability and fostering responsible AI applications. Looking ahead, the discussion will examine how emerging technologies, such as quantum computing and advanced generative AI models, could revolutionise archaeological practice. These advancements may enhance the interpretation of complex datasets, simulate historical scenarios, and predict areas of high archaeological potential, supporting sustainable and inclusive approaches to cultural heritage. Participants are invited to share insights, methods, and reflections on integrating AI into archaeology. We want to envision innovative and responsible ways to connect with the past and to shape the future of the field, and to discuss case studies that show how these tools bridge the fields of archaeology, cultural heritage, and data science.

CONTRIBUTION ABSTRACTS

510. BREATHING LIFE INTO VIRTUAL ANTIQUITY. AI-DRIVEN IMMERSIVE EXPERIENCE OF ANCIENT EPHEBUS

Contribution format: Oral  
Contribution authors: Ahmet Denker – Arda Yurt – Eray Gunduz – Can Piker – Ayberk Gormus (Istanbul Bilgi University)

The rise of artificial intelligence (AI) has ushered in a new era of interactive experiences of virtual antiquity, where virtual characters play a central role in engaging visitors at reconstructed cultural heritage (CH) sites. This study explores the intersection of Virtual Reality (VR) and AI-driven character creation in enriching the virtual experience of ancient Ephesus at its peak. By integrating lifelike AI-powered avatars, imbued with personality and emotion, we try to showcase that it is possible to bridge the gap between visitors and digital heritage environments. These intelligent avatars, driven by sophisticated algorithms and natural language processing (NLP), serve as interactive guides, fostering immersive and intuitive engagement. They not only respond to user interactions but also adapt their behavior dynamically, enabling deeper, more personalized storytelling experiences. At the core of this innovation is the synergy between AI technologies such as NLP and machine learning, which empower avatars to comprehend and generate human-like responses, recognize emotions, and react in real time. This transformative approach enhances user engagement by offering interactive narratives that bring history of ancient Ephesus to life. Beyond technical implementation, effective character design plays a crucial role in audience immersion. Our approach incorporates storytelling principles, ensuring that avatars possess distinct personalities, motivations, and rich backstories that resonate emotionally with users. Through expressive dialogue, gestures, and nuanced interactions, these AI-driven characters transcend traditional virtual experiences, creating a compelling, memorable journey through the streets of ancient Ephesus. This work demonstrates the potential of AI-driven avatars in digital heritage applications, offering a glimpse into the future of virtual archaeology, where historical reconstructions become not just visual representations, but living, interactive worlds.

775. INSIDE THE WORKFLOW OF AN AI PROJECT IN ENVIRONMENTAL ARCHAEOLOGY

Contribution format: Oral  
Contribution authors: Elisa Paperini (University of Pisa)

The increasing availability of large-scale archaeological and palaeoecological datasets presents opportunities and challenges for data integration and analysis. In this context, artificial intelligence (AI) techniques offer promising tools, but their effectiveness depends on the quality and consistency of the input data. For this reason, data normalisation is crucial to ensuring usability, supporting accessibility and interoperability, and making the data robust and reliable for compatibility with AI algorithms, leading to accurate and trustworthy results. This project explores the methodological challenges (and solutions) for normalising modern and ancient pollen datasets to enable their integration into AI-driven analyses for paleoenvironment reconstruction. Pollen datasets from key repositories (e.g. Neotoma, SEAD, EMPD) were harmonised to create a coherent framework for training AI models in biome classification. The research focused on a European-scale pollen dataset, addressing challenges in standardising data formats, temporal scales, and taxonomic classifications. Following the data normalisation process and subsequent optimisation, Gradient Boosted Trees was applied for predictive classification, achieving 90% accuracy in distinguishing eight biome classes using modern European pollen data (<500 years old). We are extending this approach to predict biomes with ancient pollen datasets. The iterative process between AI outputs and domain expert validation underscored the importance of robust data preparation for enhancing predictive accuracy and interpretability. It also highlighted the need for interdisciplinary collaboration at each stage of system development. Within the project, generative AI tools (e.g. MidJourney, DALL-E) are being integrated to reconstruct ancient landscapes from pollen diagrams and AI-generated predictions. AI-assisted visualisations can enhance education and outreach, making complex datasets more accessible to a broader audience. As the reliability of these methods improves, they may also become valuable for research applications. In conclusion, this contribution highlights the key steps in applying AI to archaeological research, from dataset normalisation to predictive and generative modelling.

1744. AI-DRIVEN MODELING OF LONG-TERM ENVIRONMENTAL IMPACT ON MNAJDRA PREHISTORIC MEGALITHIC TEMPLES, MALTA

Contribution format: Oral  
Contribution authors: Joel Azzopardi – Daniel Micallef – Mantas Valantinavičius – Joann Cassar (University of Malta)

The Mnajdra Prehistoric Megalithic Temples, a UNESCO World Heritage site located on Malta’s southern coast, have faced centuries of environmental challenges, including wind erosion, salt damage, and solar radiation. Built from two types of limestone, including the soft and porous Globigerina limestone, and lacking their original roofing, parts of these temples are severely eroded. Reversible open-sided shelters were installed in 2009 to mitigate some impacts, but understanding the underlying causes of degradation remains crucial. This study aims to model how global environmental conditions contribute to stone weathering within the apses (the temples’ semi-circular “rooms”). Computational Fluid Dynamics (CFD) simulations using the OpenFOAM solver were conducted across multiple resolutions—macro (1m), meso (0.16m), and micro (0.005m)—to capture aerodynamic conditions and surface interactions on the unsheltered temples. CFD provided valuable insights, but its high computational costs made it impractical for long-term analysis. An AI-based solution was therefore introduced. A Convolutional Neural Network was trained based on CFD output at the meso scale to predict the turbulent dissipation rate—an important variable in CFD that uses the Reynolds Averaged Navier Stokes turbulence modelling. By leveraging the ERA5 reanalysis dataset, which provides hourly meteorological conditions since 1940, the model can predict long-term surface conditions and potential degradation patterns. With only 32 CFD simulations available, data augmentation techniques were employed by dividing the input data into overlapping patches. This AI-driven approach drastically cuts computational time, generating downscaled data in less than a minute compared to over 17 hours needed for CFD simulations of 8 scenarios. It highlights areas most vulnerable to weathering. Future work will validate these predictions with in-situ measurements of surface degradation and environmental conditions. The ultimate goal is to identify key environmental factors driving degradation and integrate these findings with known degradation mechanisms and drive further research into deterioration causes.

1589. ARTIFICIAL INTELLIGENCE IN ARCHAEOLOGY: THE MAIA COST ACTION AND ITS TRANSFORMATIVE POTENTIAL

Contribution format: Oral  
Contribution authors: Gabriele Gattiglia – Francesca Anichini (University of Pisa) – Holly Wright (University of York)

The application of Artificial Intelligence (AI) in archaeology is rapidly expanding, yet its full potential remains underexplored. The MAIA COST Action (CA23141) seeks to bridge this gap by fostering interdisciplinary



collaboration among archaeologists, computer scientists, and heritage professionals. By addressing key challenges such as data scarcity, ethical concerns, and the integration of AI into archaeological workflows, MAIA aims to ensure that AI applications remain transparent, ethical, and scientifically rigorous. A major challenge in AI-driven archaeology is the fragmented and incomplete nature of datasets. Traditional machine learning struggles with the small, heterogeneous datasets typical of archaeological research. MAIA is dedicated to addressing these issues by promoting the creation of digital comparative collections and training datasets aligned with FAIR (Findable, Accessible, Interoperable, and Reusable) principles. This facilitates improved AI model training while ensuring data accessibility and machine-actionability. Beyond technical advancements, MAIA also critically examines the ethical implications of AI in archaeology. Focusing on Explainable AI (XAI) enhances transparency and interpretability, ensuring archaeologists retain control over AI-assisted interpretations. By tackling issues of technological agency, bias, and accountability, MAIA advocates for responsible AI integration that complements human expertise rather than replacing it. MAIA also works in synergy to map the current state of AI in archaeology, develop standards for data management, address ethical concerns, and disseminate findings to the broader archaeological community. Through interdisciplinary collaboration, MAIA is shaping the future of AI in archaeology and ensuring that its adoption is both methodologically sound and ethically responsible.

**2254. FROM A “ZERO-CODE” TO A “LOW-CODE” AI APPROACH: AUTOMATING THE PROCESSING OF TOPOGRAPHICAL MAPS FOR ARCHAEOLOGICAL RESEARCH**

**Contribution format:** Oral  
**Contribution authors:** Caterina Paola Venditti (University of Cassino and Southern Lazio | Ministry of Culture (Italy)) – Antonio Leopardi (IACNet)

The analysis of analog cartographic sources plays a crucial role in reconstructing ancient landscapes and understanding territorial transformations. In addition to historical maps, archaeological maps produced from the early 20th century until the advent of digital cartography contain valuable spatial and contextual data. However, manually extracting features from such documents remains a labor-intensive and time-consuming process. This research proposes a workflow that leverages AI to automate the recognition and georeferencing of different cartographic elements from analog supports. The workflow integrates free, open-source, and low-cost tools for object detection. By employing computer vision models, we aim to test and evaluate the performance of CNNs and LLMs such as ChatGPT for object detection, segmentation, extraction of geospatial data, and retrieval of associated semantic information (e.g., symbols, place names, and textual annotations). Our strategy also incorporates GPT-based automation to optimize data annotation and processing. This study explores the combination of both “zero-code” and “low-code” approaches to develop an accessible pipeline for archaeologists with limited technical expertise. Some challenges remain, particularly in adapting AI models to recognize specialized symbols, aligning extracted data with geospatial frameworks, and ensuring accuracy in the automated transcription of textual and graphical elements. While existing AI tools offer significant potential, they may require preliminary dataset annotation and fine-tuning to achieve optimal results. The goal is to automate the transcription of spatial data into vector-based geospatial data, making it ready for implementation in a GIS system while reducing processing time and opening new perspectives for territorial research and diachronic landscape analysis. This paper presents the first results obtained from applying this method to selected cartographic datasets, highlighting its potential while also addressing current challenges that need to be overcome.

**2013. DESCRIPT: ANALYSIS AND DECIPHERMENT OF ANCIENT AND RARE WRITING SYSTEMS**

**Contribution format:** Poster  
**Contribution authors:** Rune Rattenborg (Lund University) – Beata Megyesi (Stockholm University)

The study of historical writings provides critical insights into past cultures, languages, and traditions. However, deciphering unknown scripts remains a formidable undertaking due to their linguistic complexity, degradation of media over time, and the resulting dearth of reference materials available from archaeological excavations. Traditional philological methods, while invaluable, often struggle to overcome such obstacles, while existing digital tools are optimised primarily for well-documented and standardised scripts. Bridging this gap necessitates a new, interdisciplinary approach that combines computational techniques with expert historical and archaeological analysis, heeding the material context of inscribed artefacts as characteristics every bit as important as the contents of the inscription itself. The DESCRIPT project addresses this challenge by integrating artificial intelligence (AI), machine learning, and cryptanalysis with expertise from computational linguistics, philologists, historians, and archaeologists. Building upon previous research on early modern European ciphers, DESCRIPT extends its focus to a wider array of complex historical scripts from all over the globe. The project aims to develop AI-driven tools capable of analysing, transcribing, and translating rare and undeciphered scripts. The primary objectives of DESCRIPT include the creation of a digital corpus of rare scripts, developing advanced recognition models for transcription, and the enhancement of interactive decipherment frameworks. Leveraging AI and a novel combination of linguistic, computational, and archaeological expertises, the project seeks to establish a

robust, scalable and adaptive system for historical script analysis. This project represents a significant advancement in the field of historical linguistics. manuscript studies, and historical archaeology, with the potential to uncover previously inaccessible knowledge encoded in rare historical texts. As the initiative is running from 2025 to 2032, and so is in its very early stages, this poster will outline its primary structure, workflow, and expected outcomes, inviting scholarly engagement and collaboration.

**2175. SEGMENTATION OF ARCHAEOLOGICAL LANDSCAPES USING ARTIFICIAL INTELLIGENCE: ONTOLOGIES, MULTI-SOURCE DATA AND INTERDISCIPLINARY COLLABORATION**

**Contribution format:** Poster  
**Contribution authors:** Rebeca Blanco-Rotea (Landscape, Heritage and Territory Laboratory, University of Minho) – Natália Botica (Unit of Archaeology of the University of Minho | Landscape, Heritage and Territory Laboratory, University of Minho | Associate Laboratory for Research and Innovation in Heritage, Arts, Sustainability and Territory) – Bruno Dias (University of Minho)

This presentation explores an approach for segmenting archaeological landscapes into Landscape Units by combining a landscape ontology with data from satellite imagery, LiDAR surveys, historical maps, and archival documentation. By integrating these heterogeneous data sources, we apply Artificial Intelligence (AI) techniques to automate and support the segmentation process, allowing the identification, delimitation and characterization of Landscape Units with greater efficiency and accuracy, which should be subsequently tested archaeologically. The goal is not only to study and represent the evolution of the landscape over time, but also to create open access training datasets that promote reproducibility and foster interdisciplinary collaboration between researchers from archaeology, architecture, geography, environmental sciences and digital humanities. This methodology offers new perspectives for spatial planning, heritage management, and landscape dynamics research. The research is applied to the study of mountain agricultural landscapes, which present unique geomorphological characteristics in Portugal, which we believe will help in the segmentation of the landscape through this methodology.

**205 COMING TOGETHER: CASE STUDIES ON COMMUNITY COALESCENCE IN BRONZE AGE AND IRON AGE EUROPE**

**Session theme:** 2. Intertwined Epistemologies: Transcending the Data – Theory Divide  
**Session format:** Regular session  
**Session keywords:** Community coalescence, Population aggregation, Bronze Age, Iron Age, Settlement archaeology, Centralization  
**Session organisers:** Marcello De Vos (University of Rome Sapienza | University of Groningen) – Yannick De Raaff (University of Gothenburg) – Rebecca Worsham (Smith College)

**SESSION ABSTRACT**

This session aims to bring together scholars working on aggregated settlements in Bronze Age and Iron Age Europe and to collect case studies for cross-cultural comparison of ‘community coalescence’. This concept, first successfully applied in the archaeological discourse by Kowalewski (2006) and later adopted by other scholars, most notably Birch (2012, 2013, 2018), refers to the process of how small groups of people come together to live in larger settlements. Such processes are noted in archaeological contexts worldwide and seem to occur mostly in cases of societal stress. Coming together in a larger community brings various advantages, such as increased security and access to resources, and as such can be a strategy to overcome threats. Newly founded aggregated settlements do not always last, as larger groups of people living together for the first time result in tensions and a need for socio-political reorganization. However, when they persist, these settlements display complex and dynamic trajectories of development, frequently leading to urbanization and state formation. In this session, we welcome papers that present case studies of community coalescence in Bronze Age and Iron Age Europe. We are interested in investigating the causes and consequences of population aggregation, social strategies for creating cohesive communities, and how these can be detected in the archaeological record through for example changes in the built environment and burial practices.

**CONTRIBUTION ABSTRACTS**

**2293. COALESCING COMMUNITIES IN EARLY BRONZE AGE CRETE**

**Contribution format:** Oral  
**Contribution authors:** Timothy Cunningham (Universite Catholique de Louvain (UCLouvain))



Early Prepalatial Crete provides rich evidence of a variety of strategies for social organization, settlement location, and resource management, with multiple cultural pathways and ‘developmental’ trajectories often overlapping spatially and temporally (Driessen 2001; Whitelaw 2004; Papadatos 2008.) However, these periods (EM I-II) are often subsumed into an evolutionary paradigm, varied in speed, but leading inexorably to the Palace-based civilization/s of the Middle and Late Minoan periods. Paradoxically, the very existence of the later palaces is used to retroactively contextualize and explain earlier evidence. In the EM IIB period, demographic growth, increased trade, and monumental building projects at later palatial sites and elsewhere have been seen merely as a first step toward palaces, despite major disruptions at the end of this period, and major differences between and within the sites in question, with little attention to the mechanisms behind these developments. For example, the far east of the island sees a sharp increase in small habitations and settlements through the FN IV and EM IA phases, with what has been previously termed ‘nucleation’ in EM II. Evidence suggests geographically distributed sites with differing but overlapping traditions ‘coalescing’ by EM IIA into communities that are aware of their own identity as such. I have suggested elsewhere (Cunningham 2023) that Bronze Age Crete belongs to a category of places where social complexity is both managed and driven by the need to attract and retain constituents, through various forms of social entanglement. To escape the trap of evolutionary thinking, I propose a dialectical approach allowing for both increases and decreases in social complexity, freeing the (deeper) past from being contingent on the (palatial) future. A re-examination of the early Prepalatial settlement history of far eastern Crete through the lens of coalescence may thus provide new mechanisms to explain and understand the archaeological evidence.

**2121. COMMUNITY COALESCENCE AND COLLECTIVE ACTION AT THE EARLY MYCENAEAN SETTLEMENT OF MALTHI, GREECE (CA 1700 BCE)**

**Contribution format:** Oral  
**Contribution authors:** Yannick De Raaff (University of Gothenburg) – Rebecca Worsham (Smith College)

One of the core principles of community coalescence as a theoretical concept is that when previously dispersed groups aggregate into larger societies, they must develop new ways of living together and managing potential conflicts. In other words, how do villages deal with the social and economic problems of coresidence (i.e. cooperation)? The solutions adopted are not uniform and may involve, for example, consensual decision-making or the appointment of arbitrators or leaders (Thompson & Birch 2018, 3, 7). Our discussion is based on the village of Malthi in Messenia, southwestern Greece. During the transitional period between the Middle and Late Bronze Age (ca. 1800–1600 BCE), a time of rapid and pervasive social change, this seemingly small and dispersed settlement was reorganised as part of a single, coherent construction project. As is often the case with examples of coalescence, this transformation at Malthi resulted in integrative architecture surrounded by a substantial fortification wall. For a village of approximately 200 inhabitants, this represented a considerable investment of labour and time, likely requiring the aggregated labour of the populace of the surrounding area. It was previously suggested that this shift represents a move away from social structures based on household membership toward the creation of settlement-based (and even supra-settlement) communal identities. In this contribution, we apply architectural energetics to model the involvement of villagers in the construction of each of the architectural structures to study the cooperative dimensions of this project. This enables a consideration of how collective action was organised during this major settlement redesign and how communal interests were negotiated in relation to those of individual households.

**1570. COMING TOGETHER, LEAVING BEHIND: ABANDONMENT AND COALESCENCE IN THE SHAFT GRAVE PERIOD**

**Contribution format:** Oral  
**Contribution authors:** Rebecca Worsham (Smith College)

In many cases, a precondition for coalescence is settlement abandonment. Lamoureux-St-Hilaire and Macrae (2020) have recently problematized settlement abandonment as a single event, emphasizing instead that it is a process that can be drawn out over a fairly lengthy period of time—which they call “detachment from place.” This paper explores coalescence through a pattern of abandonments described by Maran (1995) occurring at the transition to the Late Bronze Age in mainland Greece, the so-called “Shaft Grave” period, around 1700 BCE. In these cases, settlement space is transitioned to funerary use, and the population seems to relocate elsewhere. Although the living settlements are for various reasons hard to identify, the funerary use of the earlier habitation sites implies a continued relationship with these spaces by a group that is still invested in the history/memory of the former settlement. Similar patterns of behavior have been observed for short migrations cross-culturally, including most notably early modern Togo in West Africa (de Barros 2020). This case study is of particular importance because it sheds light not only on the so-called “stressors” and “enablers” involved in mass movements of people—in this case, destabilization brought about by slave raiding and warfare—but also on how relationships with abandoned settlements are maintained. I argue here that the settlement abandonments in Shaft Grave-era mainland Greece may be explained similarly, especially with regard to their afterlives as funerary spaces,

focusing on the well-known pattern of coalescence around Mycenae in the Argolid. Here and elsewhere, coalescence seems to be marked by a sort of partial “detachment” from former settlement space.

**841. UNPACKING THE PROTO-URBAN TURN: COMMUNITY COALESCENCE IN EARLY IRON AGE CENTRAL ITALY**

**Contribution format:** Oral  
**Contribution authors:** Marcello De Vos (Sapienza University of Rome | University of Groningen)

The so-called proto-urban turn is a well-documented phenomenon in central Italian proto-history; around the beginning of the Early Iron Age populations moved from small villages to larger settlements on naturally defended plateaus, that would eventually grow out to become city states. The process of centralization that is noted here is often studied within the context of urbanization, as a looming destiny of these sites, and less attention is paid to the matters of how and why these large settlements so suddenly occurred. To get a better grip on this question, it is important to study the process not as a prelude to urbanism, but as a phenomenon on its own, as population aggregation. The question then is, how can we archaeologically detect the ways and reasons of people coming together in these places? They surely did not start out with the idea of the perfect city in mind. In this paper, I will attempt to deal with this question based on the archaeological evidence from the area of Latium vetus. I will discuss examples of early settlement planning, changing burial customs and settlement strategies as potential clues for community coalescence and seek to gain a better understanding of the proto-urban turn as a social process.

**1738. THE RISE OF EARLY CITIES: NUCLEATION IN FIRST MILLENNIUM BCE CENTRAL ITALY**

**Contribution format:** Oral  
**Contribution authors:** Camilla Zeviani (Kiel University | University of Cambridge) – Simon Stoddart (University of Cambridge)

Recent research highlights the dynamic interplay between social resilience, demographic shifts, and ecological factors in shaping urban development. Drawing on Kopytoff’s internal frontier model and its application to 1st millennium BCE Etruria, this study investigates the mobility and settlement patterns that determined the success or failure of early urban centres. Integrating archaeological science with historical and cultural analyses, this research presents a multi-scalar approach to nucleation. By synthesising biological markers such as aDNA, isotopic analysis, and faunal remains with architectural and survey data, the study reveals patterns of population growth, mobility, and social cohesion. Findings indicate that urban resilience was maintained through social structures, ritual practices, and economic strategies that fostered demographic stability despite external pressures. A critical component of urban sustainability was the interdependence between urban centres and their rural hinterlands. This study employs big data modelling to assess agricultural potential and its role in supporting nucleated communities. While cities attracted new inhabitants through cultural and economic incentives, they also faced competition from peripheral settlements. The case of Etruria illustrates how dominant Etruscan cities outcompeted smaller centres and later transitioned under Roman influence through both coercion and integration. Additionally, this research underscores the impact of selective violence and disease in shaping urban life. Stress markers in human remains suggest that urbanisation was accompanied by significant social and biological challenges. By situating microhistorical case studies within broader demographic trends, this paper advances a comparative framework for studying nucleation processes in global contexts. This presentation will provide fresh insights into the mechanisms of urban resilience and their implications for understanding past and present urbanisation trends.

**255. POPULATION AGGREGATION, URBANISM, AND RESILIENCE DURING THE 1ST MILLENNIUM BC IN THE SOUTH-EASTERN ALPINE REGION**

**Contribution format:** Oral  
**Contribution authors:** Luka Gruškovnjak – Petra Vojaković (University of Ljubljana) – Sašo Porenta (Primož Stergar s.p.) – Agni Prijatelj – Helena Grčman – Branko Mušič (University of Ljubljana) – Barbara Horn (Gearh d.o.o.) – Matija Črešnar (University of Ljubljana)

The southeastern alpine region of present-day Slovenia began to see the advent of aggregated settlements around the turn of the 1st millennium BC, corresponding to the transition between the Late Bronze Age and Early Iron Age. The phenomenon is expressed in the decline of smaller Late Bronze Age hillforts and villages and the emergence of large hillfort settlements that seem to have acted as centres of surrounding territories. These settlements have long been the focus of landscape and settlement studies that revealed their central role within prehistoric landscapes. Until recently, however, there was not enough data on their internal organisation to allow us to study their structuring and lifeways within them. In this paper, we will present three sites where recent excavations and geoarchaeological research have allowed some critical new insights into the inner workings of such settlements: Ljubljana, Pungrt and Stična. We will explore the elements of daily lives, crafts, and the built environment



within them and discuss the implications of their urban structure and resilience demonstrated in their longevity for the political organisation of such settlements.

426. SETTLEMENT PATTERN CHANGE IN BELA KRAJINA, SOUTHEASTERN SLOVENIA: COMMUNITY COALESCENCE IN THE IRON AGE

Contribution format: Oral  
Contribution authors: Lucija Grahek (Institute of Archaeology ZRC SAZU, Ljubljana)

The dynamic shifts in settlement patterns during the Iron Age offer key insights into community coalescence and socio-political transformations. This presentation examines the changes in settlement structures in Bela Krajina, focusing on the processes of aggregation, centralization, and continuity. Through archaeological and interdisciplinary analyses, we explore how external influences and internal dynamics shaped the settlement landscape of this region. Recent research, particularly at sites such as Podzemelj and Vinica, revealed shifts in settlement organization, from numerous minor communities to two major, centralized, and fortified sites. These transformations are partly different from the Iron Age settlement pattern within broader southeastern Slovenia, where similar settlements became focal points of social, economic, and political integration. The evidence from burial practices, material culture, and settlement organization indicates increasing complexity, suggesting mechanisms of adaptation, resilience, and social restructuring in response to external pressures and intercultural interactions. Key findings highlight the role of natural geography, resource distribution, and cultural transmission in shaping settlement choices. The tradition of the Dolenjska Hallstatt cultural circle and Iapodian influences, as well as the impact of the Celtic Taurisci tribe, underscore the interconnected nature of Late Iron Age societies in Bela Krajina. Notably, variations in burial customs and architectural features at different sites reveal the negotiation of cultural identity and adaptation to new socio-political realities. By synthesizing archaeological data with advanced analytical methods, this research contributes to the broader discourse on community coalescence, exploring how small groups united into larger socio-political entities. These findings provide comparative insights for understanding similar processes across Bronze Age and Iron Age Europe, reinforcing the significance of settlement archaeology in tracing long-term cultural transformations.

2299. SETTLEMENT STRUCTURES AND SOCIAL COMPLEXITY IN CASTRO LANDSCAPES: COMPUTATIONAL APPROACHES TO HIERARCHY AND COALESCENCE IN GALICIAN IRON AGE HILL-FORTS, SPAIN

Contribution format: Oral  
Contribution authors: Santiago Tunas-Corzon (University of Cambridge | Spanish National Research Council)

The first millennium BC in north-western Iberia is marked by the absence of burials and open settlements. Hillforts, known in the region as castros, were the only form of occupation on the landscape for more than seven hundred years, from the 9th century BC until Roman domination. From a landscape perspective, the spatial analysis of these sites supports the idea that they were occupied by agrarian communities with egalitarian access to land, albeit with a constant concern for opposition and confrontation. Compared to other European Iron Age hill-forts, castros are much smaller: the vast majority have less than 1 hectare of enclosed area, and never exceeded 2 or 3 hectares during the Iron Age; it is only under Roman influence that this situation changes and larger castros between 5 and 20 hectares appear. The aim of this paper is to assess settlement structures in castro landscapes using a multi-scalar approach, both in terms of spatial extent (regional and local) and units of analysis (sites, households, artefacts). The results of rank-size analysis show that, in most cases, size variation follows a uniform or convex pattern, with only a few exceptions near the southern coast and border with Portugal, where dominant sites appear. However, other statistical methods focusing on households, such as Gini coefficients and Correspondence Analysis, allow for a more nuanced interpretation suggesting that larger castros are not internally different from smaller ones. In addition, this talk will also consider the utility of computer simulations based on models of entropy maximisation to identify areas of potential coalescence. In this case, it is possible to test whether aggregation into larger settlements happened due to internal developments, or as a response to an exogenous effect induced by Roman contact.

206 A PROFESSION IN FLUX: ARCHAEOLOGY. CONFORMITY VS NON-CONFORMITY, FEAR VS HAPPINESS ... HAS POPULAR CULTURE SOME ANSWERS?

Session theme: 4. De nobis fabula narratur: archaeological practice and a profession in flux  
Session format: Workshop  
Session keywords: Learning, Flux, Joy, Coping With Change, Collaboration, Profession  
Session organisers: Emily Plunkett (—) – Mark Spanjer (Saxion University)

SESSION ABSTRACT

Change is inevitable (indeed the only constant (Heraclitus)). Change is something we abhor and whilst simultaneously longing for, often uncomfortable but also sparking joy through creativity and excitement. Indeed to keep ourselves intellectually stimulated we seek change and challenges despite discomfort. However, this discomfort can often result in negative responses such as a loss of ‘leadership’ in favour of ‘dominance’, a retreat due to overwhelm, and don’t forget just plain tiredness. However, if we look at pop-culture influencers we find the following inspiration to counter our discomfort. For example as you change even small things “you start to believe in the future” and “change begins to accelerate” (Marie Condo). As such this workshop will posit that it is time to embrace discomfort, share our concerns, and follow Taylor Swift in admitting that (sometimes) “I’m the problem, it’s me”. And, lest we forget, enjoy each others company and the exchange of ideas. This workshop will allow space to talk about change, responses to that change, and encourage discussion about the joys and fears we experience as professionals. The workshop is an opportunity for the participants to share their experiences and raise awareness of the personal and collective needs/wants that fuel our professional culture. Discussion will be facilitated, via ‘speed dating’, interspersed with papers and feedback to encourage further discussion across two 2-hr sessions and will not be recorded or live streamed to allow a safe space for discussion. Part 1 – Small Fears. Part 2 – Joy and Nourishment. Papers are not invited for this format. Based on the cultural icons, the workshop will seek to better our community by focusing on our group psychology and positive ideas about selfworth. It will gather challenges and solutions from attendees which will form a ‘solutions kit’ which will be published following the conference.

207 PARTICIPATORY APPROACHES IN ARCHAEOLOGY AND MUSEUMS 20 YEARS ON FROM THE FARO CONVENTION’S ARTICLE 12

Session theme: 6. Intertwining archaeology, heritage, and museums  
Session format: Regular session  
Session keywords: participatory practices, evaluation, underrepresented demographics, sustainable business models  
Session organisers: Harald Fredheim (Department of Archaeology, University of York) – Marte Spangen (Museum of Cultural History, University of Oslo)

SESSION ABSTRACT

In 2005, the Faro Convention of the Council of Europe connected heritage to human rights and declared that “everyone, alone or collectively, has the right to benefit from cultural heritage and to contribute to its enrichment.” Article 12, in particular, declared that everyone should be encouraged to participate in identifying, studying, interpreting, protecting, conserving and presenting heritage. While there certainly have been many success stories of participatory practices in archaeology and museums, scholarship has also highlighted that participatory practices tend to operate at the periphery of heritage organisations, often delivered by staff on temporary contracts and funded through fixed-term project grants. 20 years on from Faro, this session invites papers that explore.

- the challenges archaeological and museum organisations face in attempting to embed participatory practices at the core of their work
- methodological approaches to evaluating participatory practices and evidencing the positive and negative outcomes for participants, staff, organisations, local communities and the sector at large
- equitable and creative approaches to ensuring everyone has equal opportunity to participate in archaeology and museums, professionally or voluntarily, with particular reference to source communities, indigenous groups, disabled people and other demographic groups underrepresented in the sector
- innovative ways of positioning participatory practices at the core of sustainable business models for archaeological organisations and museums

CONTRIBUTION ABSTRACTS

2007. HOW DO WE TRACE LONG-TERM PUBLIC PARTICIPATION? AN ANALYSIS OF NORWAY’S DIGITAL ARCHAEOLOGICAL ARTEFACT COLLECTIONS

Contribution format: Oral  
Contribution authors: Irmelin Axelsen (Museum of Cultural History, University of Oslo)

In many European countries, the public has long historical roots of participating ‘in identifying, studying, interpreting, protecting, conserving and presenting heritage’. At the same time, there is little quantifiable information about how the type of public participation detailed in Article 12 of the Faro Convention has developed or changed



before, and after, 2005. This is not surprising, as it is challenging to assess the extent of public participation in heritage institutions. The sources are complex and varied, rarely concerned with the who- or finder-component of, for example, an archaeological artefact’s find history, and only some are digitized and made easily available. In this paper I present some of the key findings from a study of Norway’s digital artefact collections. By comparing data about finds uncovered from the late 1700s to January 2024 I have attempted to trace the long-term practices and development of public participation in the country’s five archaeological museums. One aim has been to explore whether the catalogue texts can in fact aid in providing knowledge about any trends and changes to the public’s participation in collecting and handing in archaeological artefacts and information about the objects. Ultimately, I seek to answer the question: who are collecting archaeological objects, why and how, and, does that knowledge matter for future archaeological studies?

**620. THE FARO CONVENTION, LOCAL COMMUNITIES AND ARCHAEOLOGICAL HERITAGE: SOME REMARKS FROM THE LITHUANIAN PERSPECTIVE**

**Contribution format:** Oral  
**Contribution authors:** Justina Poskiene (Vilnius University, Department of Archaeology)

Lithuania has not acceded to the Faro Convention, although initiatives have been taken. In 2019, a study commissioned by the Ministry of Culture concluded that Lithuanian legislation is fully compliant with most provisions of the Faro Convention, and only a few, including Article 12, are partially compliant. The state system for the protection of cultural heritage (in operation since 2005) has most significantly shifted towards the ‘Faro spirit’ in the listing procedures, but with regard to the archaeological heritage, the role of experts remains central. There is a lack of representative surveys that would reveal the attitude of Lithuanian society at large towards the archaeological heritage. In 2024-2025, semi-structured interviews were conducted with representatives of local communities (under the LMTLT funded project no. S-VIS-23-13), the results of which are presented. It turned out, that the vast majority of respondents do not have a clear concept of archaeological heritage. Some communities place the archaeological heritage in the ethno-cultural tradition and associate it with mythological representations. A deeper understanding is characteristic of those communities whose active members deal (or have dealt) with heritage (in the broadest sense) in their professional activities. Communities that have an indirect interaction with the archaeological heritage (i.e. live “close to the heritage”) consider the archaeological heritage as important for the identity of the local community. Those whose members interact directly with the archaeological heritage (i.e. live “in the heritage”) have expressed that its protection can be an obstacle to local development and quality of life. Although the archaeological heritage is not the main focus of the communities surveyed, the presentation raises the question of how the perceived importance of the heritage and its relevance to people’s local identity can be seen as a potential for participatory practices in archaeological heritage conservation.

**799. CHALLENGE ACCEPTED: EMBEDDING PARTICIPATORY APPROACHES IN DUTCH ARCHAEOLOGY**

**Contribution format:** Oral  
**Contribution authors:** Neelson Witte – Wim Burggraaff (Cultural Heritage Agency of The Netherlands)

Early 2024 the Netherlands signed the Faro Convention and the ratification process will start this year. But work on the Convention began in 2018. At the heart of the Dutch approach is a dynamic, inclusive network that brings together different stakeholders—from policy makers and museum professionals to volunteers and community representatives. We invited everyone interested in heritage to explore the meaning of the Faro Convention through open debates, research, and local dialogues. After three years of collaborative work, in 2022 the heritage sector itself drafted an agenda for more democratic and inclusive heritage practices. A participatory grant system allows network members to co-create and refine project proposals, with particular focus on reaching under-represented communities. In our paper we focus on the challenges of the participatory approach for the archaeological field. How can participation be placed at the heart of the archaeological process based on the Malta Convention? And how can participation in archaeology be organized alongside the formal archaeological process. In recent years we have supported several experiments that have sought to answer these questions. Projects that have experimented, for example, with the regulation for metal detecting and the ownership of private collections. We will discuss the impact of these initiatives on the infrastructure of cultural heritage policy and management.

**1158. AN ARTEFACTS ADVENTURE: FROM STORAGE TO THE STREETS**

**Contribution format:** Oral  
**Contribution authors:** Karla De Roest (Hunebedcentrum | Groningen Institute of Archaeology, University of Groningen)

In 2024, the Cultural Heritage Agency of the Netherlands introduced a grant scheme to examine how the newly implemented Faro Treaty functions in practice. One of the selected pioneering projects is based in Drenthe, a province rich in (pre)history. The Hunebedcentrum, a museum dedicated to archaeological education, initiated

the project in collaboration with volunteer organizations, the province of Drenthe, the University of Groningen, and the archaeological storage facility of the Northern Netherlands. At the Hunebedcentrum, volunteers, interns, staff, and individuals outside the regular workforce participate in the project. While the megalithic monuments attract many tourists to this rural region, many local residents are unaware of the deep history connected to the places where they live or shop. The project’s aim is not only to raise awareness by showcasing archaeological findings but also to foster local ownership of that past. The project manager seeks to facilitate decisions without imposing them on the communities. Temporary exhibitions, driven by local choices, are organized by all municipalities. Residents will be offered the opportunity to visit museums, assist in research facilities, and explore the storage depot. Communities are encouraged to create lasting mementos, such as hiking routes, sculptures, and websites. This approach not only promotes heritage awareness but also stimulates tourism, a vital source of income for the region. However, embedding participatory practices presents several challenges. A key question is how to balance expert authority with community-driven perspectives. The Cultural Heritage Agency and the province require a best-practice guide as outcome of the three year running project. Issues related to authority, professionalism, ownership, diverse identities, and community building are central, as well as how to engage underrepresented groups and overcome barriers such as language, physical access, and socioeconomic constraints. The Hunebedcentrum and its partners strive to enhance public engagement with archaeology and create close-knit communities.

**139. REDEFINING COMMUNITY PARTICIPATION IN HERITAGE: REFLECTIONS FROM ETHNOGRAPHIC AND CITIZEN SCIENCE METHODS**

**Contribution format:** Oral  
**Contribution authors:** Aijia Mu (University of Oulu)

Over the past two decades, public involvement in heritage—especially since the Faro Convention—has attracted growing interest from scholars, community members, and government agencies. Understandings of why communities should participate and how they might do so have continued to develop. However, many researchers still observe that heritage participation remains limited, underscoring the need for more effective methods. Responding to this concern, this paper explores how Ethnographic Methodology and Citizen Science can foster participation in the context of industrial heritage management, using the Wangshiao Coal Mine as a case study. Established in 1961, Wangshiao was once China’s largest and earliest coal mine, underpinning the nation’s industrial growth. It closed after six decades, and in 2016 was converted into a heritage site. Drawing on ten go-along interviews with twelve local residents, alongside a photographic exhibition contributed by over twenty community members, this paper examines the extent of community engagement. The findings suggest that local residents were more deeply involved than officials had anticipated. They demonstrated strong emotional connections to the site, expressed the wish to remain there for the rest of their lives, and shared vivid memories of its remarkable past. This research highlights the value of refining participatory methods to capture local perspectives and strengthen the bond between communities and their industrial heritage.

**1143. ACTIVATING MUSEUM COLLECTIONS – EXPERIENCES FROM MANAGING ARCHAEOLOGICAL COLLECTIONS AT THE MUSEUM OF CULTURAL HISTORY, OSLO**

**Contribution format:** Oral  
**Contribution authors:** Dag Erik Olsen – Silje Mathisen – Kathryn Sæther – Hanne Lovise Aannestad (Museum of Cultural History, UiO)

This presentation will first discuss how the physical and organizational structures of archaeological museums make involving the wider community difficult, as seen from the Museum of Cultural History in Oslo. This is especially relevant for implementing Article 12 of the Faro Convention as museums today are seldom built for public interactions with the collections in storage. We will also show some of the steps taken by the Museum of Cultural History to involve a wider part of the demographic within the possibilities and constraints of the museum. We have an increasing number of requests for visiting the collections from different demographic and occupational groups. Various types of public engagements through guided tours, visits to view archaeological object etc. has become a larger part of our work and is also an important part of communicating our collections. However, few of the staff do this work and is mostly done in a small scale. An example is participating in an art film project that seeks to challenge archaeological interpretations of the earliest invented tools since most organic matter is long gone and all we have left is the stone material. The artist visited and filmed our collections and discussed the subject with archaeologist. The result will be a documentary offering a different perspective on how we can interpret archaeological data from a non-archaeologist’s perspective. This will be screened at film festivals reaching a wider audience than normally. As more focus is directed towards activating the knowledge potential in our collections, bringing people into the museum and storages becomes a valuable way to engage a wider community and is something we will continue doing in the future. This helps legitimize our public mandate, but the work must be further founded in the organization, making this a priority within cultural heritage management.



618. LESSONS FROM EMBEDDING PARTICIPATORY PRACTICES IN BRITISH AND NORWEGIAN MUSEUMS

Contribution format: Oral  
Contribution authors: Harald Fredheim – Stella Basinyi (University of York)

Academic literature on heritage management recognises that sustainable safeguarding of heritage is reliant on support from local communities (UNESCO 1999; Agnew & Demas 2014; Clark 2014; Chitty 2017; Jokilehto 2017; Doyle 2018). Within this context, Nina Simon’s The Participatory Museum is widely celebrated as an example of embedding participatory practices in museums (2010). However, writing about attempts to implement such participatory approaches in UK museums, Bernadette Lynch notes that museums’ participation and engagement work stubbornly remains at the margins of museum practice, often delivered by staff on temporary contracts funded by fixed-term grants (2011; 2015). In this paper, we will present the results of a survey and interviews with museum staff in the UK and Norway about how embedded participatory practices are in their museums. The survey was based, in part, on the Power to the People framework for self-assessment, developed by the Museums Association (2019), which allows museum to assess how embedded participatory practice is in relation to their museum’s mission and values, leadership, decision-making, funding, recruitment, professional development and evaluation. We will highlight challenges museums face in embedding participatory practices, how they work to address these and the lessons that can be learned by archaeological organisations looking to embed participatory ways of working.

208 BRIDGING THE GAPS: MULTI-, INTER- AND TRANSDISCIPLINARY APPROACHES TO ANCIENT EGYPTIAN SETTLEMENTS

Session theme: 1. On artefacts and beyond  
Session format: Regular session  
Session keywords: domestic contexts, urban settlements, ancient Egypt  
Session organisers: Eva Calomino (Center of Studies of Ancient Near Eastern History, UCA) – Uroš Matić (Institute for Classics, University of Graz)

SESSION ABSTRACT

It is well known that in Egyptian archaeology, settlements have received comparatively less attention than temples and tombs. This is due to the dominance of the philological fraction within Egyptology mostly interested in carries of texts that can be found in the latter. The prioritization of funerary pharaonic contexts and architecture in historical and archaeological research in Egypt to the detriment of interest in the study of settlements and domestic contexts, prior to the 1960s, led to little care in precise recording of the provenance of finds related to the everyday life. Although this gradually changed to the better, settlements are still not receiving the same attention as other monuments. Notwithstanding this, the current excavations mainly in the settlements of the Egyptian Delta and in some specific sites in Upper Egypt, such as Tell el-Amarna, Dendera, Edfu, Kom Ombo and Elephantine, give priority to the reconstruction of the daily life of its inhabitants in pharaonic periods. Advances in methods of excavation, documentation and study of settlement architecture and small finds allow for novel research questions to be asked. Following on these recent advances, this session aims to address multi-, inter-, and transdisciplinary approaches to the study of domestic contexts and settlements in ancient Egypt, and seeks to describe, complement and create ways of interpreting the activities carried on in such spaces from the study of objects and structures. We welcome papers from various contexts and from all periods of ancient Egyptian history and surrounding areas (e.g., Levant and Nubia) that contribute to a greater understanding of the urban areas and domestic spaces.

CONTRIBUTION ABSTRACTS

85. THE PIT SITE PARADOX: PERSPECTIVES ON GRAIN STORAGE AND THE STATE IN ANCIENT EGYPT FROM THE NEOLITHIC TO THE OLD KINGDOM

Contribution format: Oral  
Contribution authors: Daniel Alonso-Naranjo (Universitat Autònoma de Barcelona (UAB)) – Víctor Jiménez-Jáimez (Universidad de Málaga (UMA))

In European archaeology, pits are often interpreted as airtight grain storage facilities. Conventional wisdom holds that large concentrations of pits in a particular region are indicative of a substantial agricultural surplus, one that could be readily appropriated by elites for redistributive purposes. Contrary to this, the present paper introduces the notion of the ‘pit site paradox’: the more control a ruling class exerts over surplus, and the greater

the redistributive demands of the state apparatus, the fewer pit sites appear in the archaeological record. We test this hypothesis by examining the role that simple sealed pits may have played in systems of bureaucratic redistribution. As a case study, we draw on evidence from Egypt before, during, and after the emergence of state-level institutions. The Egyptian data show a clear correlation between increasing socio-political complexity and the gradual demise of dedicated pit storage areas, in support of the pit site paradox.

2423. THE IMPORTANCE OF HUNTING AND HUNTERS IN PREDYNASTIC EGYPTIAN SETTLEMENTS. AN ETHNOARCHAEOLOGICAL PERSPECTIVE

Contribution format: Oral  
Contribution authors: Sebastián Maydana (Universidad de Buenos Aires)

It is a generally accepted fact that hunting as an economic activity was already negligible among Nile Valley communities by early Predynastic times (ca. 3900 BCE). This statement is supported by archaeological as well as archaeozoological evidence, but the contemporary iconographic record seems to point in a different direction. Indeed, hunting imagery in varying forms is one of the most common topics of the Predynastic image corpus. Why are hunting and hunters so prominent in the Predynastic visual discourse, yet so inconspicuous in the material culture of Predynastic settlements? Drawing on the available archaeological evidence from Upper Egyptian settlements, and using the important tool of ethnographic analogy, here I propose that it is precisely the rarity of hunters that grants them a relevant status within Predynastic settlements during the Naqada Period. The specific craft and skill required to track and hunt wild animals, possessed only by a select few within settlements with agriculture and herding as their main economic activities, became essential during the frequent dry spells of the Nile and whenever wild animals threatened these riverine peoples’ lives, crops and herds. I would like to explore the possibility that such momentary instances of aggrandisement could have, under the right socio-cultural circumstances, been extended or even made permanent by particularly resourceful individuals. Are the hunters depicted in rock art, pottery and elite artefacts the same leaders that turned Egypt into a unified state society, or did the latter appropriate the symbols and imagery of a prestigious but antiquated group of people?

250. UNSETTLING THE NARRATIVE: TOWARDS A MORE HOLISTIC UNDERSTANDING OF SETTLEMENTS IN NORTHERN SUDAN

Contribution format: Oral  
Contribution authors: Chloë Ward – Julia Budka (LMU Munich)

Like Egypt, archaeology in Sudan has long been biased towards mortuary sites, in part because of the historical influence of Egyptological practices and Eurocentric perspectives. However, significant interdisciplinary and cross-cultural work has started to address this imbalance and re-centre both Sudan and settlements in the archaeology of the Nile Valley. This talk will draw on examples from northern Sudan during the Bronze Age, including so-called temple towns in Nubia, and smaller more ephemeral sites being investigated by the DiverseNile project. Such settlement sites have considerable potential in reaching a more comprehensive understanding, not just on daily life in Nubia at the time, but also of the complex interactions between different groups of people which have often been oversimplified in archaeological narratives. As well as showcasing ongoing interdisciplinary work, this talk will address the important, if problematic, legacy of past archaeological research on methodological and interpretative work today. From a more theoretical perspective, the bias towards mortuary sites, and limited engagement with what can constitute ‘urban’ sites in the Nile Valley, means that many Sudanese settlement sites have not been properly integrated into research on urbanism in the region, let alone in archaeology more broadly. Through examples of sites in northern Sudan, it is clear that existing models of urban sites and their hinterlands, such as core-periphery models, offer a limited perspective on the complexity of these regions. Only by de-centring such narratives, as well as fully integrating past research, data, and ongoing work, is it possible to reach a more holistic understanding of settlement archaeology in the Nile Valley.

1099. RETHINKING ROYAL PROMINENCE: FOOD STORAGE, PRODUCTION, AND CONSUMPTION IN MIDDLE KINGDOM SETTLEMENTS

Contribution format: Oral  
Contribution authors: Leah Neiman (Brown University)

The Middle Kingdom (c.2050-1750 BCE) has produced a proliferation of archaeologically attested settlements that have been traditionally taken as evidence for the direct involvement and authority of the king in shaping the daily lives of Egyptians. Integral to such narratives is the assumption that Egyptians were dependent on grain distribution by a centralized royal administration. This paper investigates archaeological evidence for food storage, production, and consumption at Middle Kingdom settlement sites across the Nile Valley. This study present results from an ongoing doctoral dissertation project that challenges assumptions about the totality of royal power and its omnipresence in daily life within Middle Kingdom settlements by approaching the study of



settlements as, first and foremost, locally specific phenomena. Spatial analysis of the organization of storage structure and food production activities at multiple settlements supports the hypothesis that inhabitants engaged in subsistence activities and modified architecture in ways that reflect their immediate social, political, and environmental factors rather than external direction from the royal administration. This paper demonstrates that taking a data-driven, archaeological approach to understanding the evolution of Middle Kingdom settlements allows patterns to emerge that attest to ways of life without being filtered through the lens of kingship – either by ancient records or modern scholars.

1556. PESTS, FLIES, AND ISLAND LIFE - INSECT FAUNAS FROM ELEPHANTINE

**Contribution format:** Oral  
**Contribution authors:** Eva Panagiotakopulu (School of GeoSciences, University of Edinburgh) – Johanna Sigl (Kommission für Archäologie Außereuropäischer Kulturen – KAAK, Bonn)

Urban settlements in pharaonic Egypt unravel unique details about everyday life. From eroding mudbrick to accumulation of material on floors and from activity areas to storerooms, the unique preservation by desiccation in the Nile Valley allows for detailed examination of fossil insect assemblages from a variety of different sealed contexts from pharaonic settlement. Recent research from the end of the Middle Kingdom, c. 1800 BC, settlement at Elephantine Island in the Nile, at Aswan in Upper Egypt, provides information about a range of different pests, with the endemics *Alphitobius diaperinus* and *Musca domestica* being the dominant species in the assemblages. Other taxa point to the environmental conditions around the site, and resource availability, with evidence for taxa associated with crops and meat. Introductions as a result of trade are also evident from the faunas of the settlement. Comparison of the insect faunas from Elephantine with earlier and later insect records from Egypt provides information as to how the evolution of the insect faunas can give insights into environmental change and resource change in the Nile Valley.

1722. SEALING AND FLINT KNAPPING NEAR THE TEMPLE – ACTIVITIES IN THE SETTLEMENT AREA IN KARNAK NORTH

**Contribution format:** Oral  
**Contribution authors:** Alexander Haidegger – Jelena Gvozdenovic (University of Vienna, Department of Egyptology) – Irmgard Hein (University of Vienna, Department of Egyptology; VIAS - Vienna Institute for Archaeological Science)

Compared to the well-known temple complex at Karnak in Upper Egypt, the settlement remains within and around the complex have received little attention in Egyptian archaeology. Unlike the stone remains of the sacred buildings, they are made of mud bricks and represent either urban residential areas or facilities associated with cultic activities. In the area of Karnak North, the IFAO conducted excavations from 1968 to 1992 and revealed a building of Thutmose I, that can be linked to the institution of the Per-Hedj (“treasury”). This structure is cutting in a multi-phase settlement contemporary with the incipient building stages of the temple. Earliest strata dating to the late Middle Kingdom/early Second Intermediate Period imply the performance of agricultural labour and sealing activities exhibited by seal impressions mainly deriving from a single locus. The IFAO mission ‘Karnak North - the Archives’ (AP 17223), in collaboration with the University of Vienna, aims to complete the recording of finds from these earlier excavations and was carried out from 2013 until 2024. In course of this archival work inventories of seals and sealings have been examined in depth for the first time. Chipped stone tools and macro-lithic objects have been analysed by standards that can be encountered in prehistoric archaeology. The state of documentation left by the former excavators made reconstruction of their respective contexts difficult, however, available records have been converted to computational formats under aid of software like AutoCAD and QGIS, thus enabling more advanced spatial analysis. Within this paper we demonstrate the evidence obtained from seal impressions and stone tools together with re-evaluation of already published data. The interpretation provides new insights into administrative activities and institutionalised domestic tasks that have been performed in the vicinity of the primordial sanctuary of Amun-Ra.

220. STREETSIDE BENCHES IN ANCIENT EGYPTIAN SETTLEMENTS OF THE MIDDLE KINGDOM AND SECOND INTERMEDIATE PERIOD

**Contribution format:** Oral  
**Contribution authors:** Uros Matic (University of Graz)

Despite the increased archaeological focus on the study of ancient Egyptian settlements from various periods, streets in these settlements have often remained overshadowed by studies concentrating more on the interiors of buildings. This is likely due to the false assumption that streets in ancient Egyptian settlements were merely transitional spaces—passages where little activity occurred. However, this view is contradicted by textual sources that suggest streets were vibrant spaces of dynamic social interaction, including activities such as sex-work

and robbery. This paper challenges the notion that ancient Egyptian streets were merely transitional spaces by examining archaeological evidence for streetside benches in Middle Kingdom (ca. 2055-1650 BCE) and Second Intermediate Period (ca. 1650-1550 BCE) settlements such as Abu Ghalib, Tell el-Daba, and Elephantine. An interdisciplinary approach, incorporating the archaeological study of the distribution, size, and materiality of streetside benches, space syntax analysis, and ethnographic studies of street activities and the use of benches in modern rural Egypt, will shed new light on the nature of ancient Egyptian street life.

2325. CONNECTING SETTLEMENTS AND ROYAL MONUMENTS IN NEW KINGDOM THEBES

**Contribution format:** Oral  
**Contribution authors:** Linda Chapon (University of La Laguna (Tenerife))

Since the birth of the discipline, much Egyptological research has indeed focused on temples and tomb contexts, also because they are the best-preserved archaeological contexts in Egypt. However, much recent research has dealt with settlements and their interrelation with other key elements of landscapes and royal edifications, such as temples, tombs, and palaces. The buildings and groups of sites form a network where landscapes can be understood as the interrelation of all these elements. Landscapes are created through time and space and result from many factors, such as people, geographical location, and specific historical events. They reflect different aspects of the social, economic and political organisation, including ideological and religious aspects. This paper aims to approach the issue of settlements from the perspective of the intrinsic relationship and interconnections between royal edifications, such as temples, tombs and palaces and daily life in settlements, including more exceptional activities, such as those occurring in festivities. This also included the way the settlements were organised socially and architecturally. There has been much debate around the role of temples as key points of the space organisation. Indeed, there is evidence, for example, from the Old Kingdom that royal monuments were the focus of highly centralised economic and administrative organisation. The issue is understanding how settlement and cult buildings were interrelated and intermingled, how and when they were formed and how they depended on each other. This paper will focus on New Kingdom Thebes, reassessing current knowledge on the field and seeking to decompartmentalise the often too narrow artificial categories created by the discipline between temples, settlements and other archaeological contexts. The aim is to get closer to the living realities of the Theban population living and working at and around royal foundations on the East and West Bank of the Nile.

363. TELL EL-GHABA’S TOWER HOUSES: UNVEILING THE SIGNIFICANCE OF ARCHITECTURAL ANALYSIS BEYOND SACRED AND FUNERARY CONTEXTS

**Contribution format:** Oral  
**Contribution authors:** Alicia Flores Martín (Independent)

Tower Houses are a unique architectural form that became particularly prominent in Lower Egypt, though they were not limited to this region. Two notable examples of such structures have been uncovered at Tell el-Ghaba, an archaeological site in North Sinai dating to the Third Intermediate and Saite periods. Throughout the history of Egyptology, architectural studies have primarily concentrated on temples and tombs due to their monumental nature and state of preservation. In contrast, the limited remains of domestic and administrative structures present significant challenges for research. However, a deeper investigation into these lesser-known buildings is essential, as they provide valuable insights into the daily life and social organization of ancient Egyptian communities. By establishing a comparison between the tower houses of Tell el-Ghaba and similar structures found in Lower Egypt and beyond, this study aims to analyze their architectural characteristics, functions and historical context to reassess their role within Ancient Egyptian settlements. The Argentinian archaeological mission began to work at Tell el-Ghaba in 1995. Throughout the campaigns carried out between 1995 and 2010, they produced several publications related to their extensive findings, including the Tower Houses. These volumes, along with other key works on non-funerary architecture, offer a solid basis for a comparative analysis of the tower houses that have been identified in different areas of Egypt. The investigation of the tower houses of Tell el-Ghaba within a comparative framework provides us with a better understanding of their function and significance, offering valuable insights into the architectural and cultural history of Lower Egypt and the Delta region.

161. BEYOND CERAMIC OBJECTS: THE CLAY FIGURINES FROM TELL EL-GHABA (NORTH SINAI, EGYPT)

**Contribution format:** Oral  
**Contribution authors:** Eva Calomino (Center of Studies of Ancient Near Eastern History, UCA)

While interest in the study of domestic contexts in Ancient Egypt is growing, primarily resulting in the organization of more specific scientific meetings and sessions on Household Archaeology and Settlement Archaeology, studies focused on urbanism, cities, and housing have not been systematic or comparative. Likewise, activities related to the various external and internal spaces of dwellings and domestic-administrative constructions have not yet been the subject of detailed and exhaustive study. This scenario becomes even more complex when



considering the historical-archaeological evidence of Lower Egypt during the 12th to 6th centuries BCE (ca. Third Intermediate Period-Early Saite Period), periods that have been scarcely addressed in Egyptology in general. At the same time, due to their nature, they provide an excellent opportunity to study these topics. As a way to contribute to the understanding of domestic activities in ancient Egypt, this study presents a comprehensive analysis of the clay figurines found in the urban settlement of Tell el-Ghaba (North Sinai, Egypt). Evidence indicates that this site was occupied between the mid-Third Intermediate Period and the early Saite Period and that its structures were likely the setting for a variety of daily activities. Among the small finds circulating in these activities were figurines made from different materials. This paper focuses on those made of clay, examining their manufacture, characteristics, classification, provenance, function and possible comparisons with others parallels findings from the Egyptian Delta and the Eastern Mediterranean region.

174. FROM ARCHIVES TO 3D RECONSTRUCTION: RECONSTRUCTING THE PTOLEMAIC PATHYRIS

**Contribution format:** Oral  
**Contribution authors:** Aneta Skalec – Wojciech Ejsmond (Institute of Mediterranean and Oriental Cultures of the Polish Academy of Sciences) – Jakub Stępnik (Faculty of Archaeology, University of Warsaw)

The urban settlements of Ptolemaic Egypt, particularly those in Upper Egypt, remain poorly understood due to several challenges, including the scarcity of published results from previous investigations, the continuous occupation of ancient sites, and the destruction of many archaeological remains. Nevertheless, valuable information can be gleaned from archival documentation combined with contemporary fieldwork—an approach this paper seeks to highlight. Pathyris, a town located approximately 30 km southwest of Luxor in the Gebelein micro-region, served as a garrison headquarters and the capital of the local nome during the 2nd and early 1st centuries BCE. It has been studied by several scholars, including Eugène Grébaut (1891–92), Georg Willoughby Fraser (1893), and Ernesto Schiaparelli (1910-1920), among others. Recent efforts by the Ptolemaic Pathyris Project team to reconstruct the settlement’s layout and residential architecture draw heavily on archival sources, primarily unpublished materials from Italian excavations conducted in 1910, and papyrological documents discovered in the town’s ruins. Archival photographs have also been instrumental in refining the reconstruction and providing insights into the site’s appearance during the early 20th-century excavations. A key outcome of this work will be a 3D reconstruction of Pathyris integrated into the site’s Digital Elevation Model (DEM). This interdisciplinary approach not only deepens our understanding of the settlement’s urban planning but also offers a unique perspective on Pathyris’ topography through the eyes of its inhabitants, particularly those who are often under-represented in historical narratives. Papyri provide valuable details about the typical elements of houses, the names of districts and streets, and even the ownership of specific residences, offering glimpses into the lives of the town’s residents. These data will be incorporated into the 3D visualization of the town, creating a vivid and immersive representation of this ancient settlement.

391. PLACES IN TIME: EXPLORING TIME THROUGH ATTACHMENT TO DOMESTIC SPACES AT AMARNA AND NIPPUR

**Contribution format:** Poster  
**Contribution authors:** Alexis Green (Monash University)

Tell el-’Amarna and Nippur are among some of the most extensively excavated archaeological sites across Egypt and the Near East. Despite stark differences in settlement duration, ongoing excavations demonstrate how further work is necessary to fully understand their histories. A review of associated excavation documentation reveals how that duration is often treated as a purely archaeological construct. This construct, or ‘archaeological time,’ often sets up the bigger picture/history of a site but may not fully reflect the occupational or ‘lived time’ experience. So how can we investigate this? One starting point is to use interdisciplinary concepts as productive complements to traditional archaeological analysis. For example, place attachment. Drawing on environmental psychology, this refers to the affective bonds between people and places, developed through habitual action over time, and generating material, social, and emotional meaning. Such places can be of any scale, from an entire city to a single house or room. Understanding how people interacted with domestic space over time, and the attachments this may have generated, could provide key insights into lived time. This poster aims to address archaeological and lived time in reference to domestic contexts. It explores the potential applicability a select interdisciplinary concept for settlement archaeology, and in studies of past persons and their built environments generally.

209 CELTS OF THE EAST: A METHODOLOGICAL APPROACH TO UNDERSTANDING CELTIC PRESENCE IN THE DANUBIAN AREA

**Session theme:** 8. Along and across the Danube!  
**Session format:** Regular session  
**Session keywords:** Iron Age, Celts, Identity, South-eastern Europe, Migrations  
**Session organisers:** Kevin Parachaud (Traces - UMR 5608 (associated member)) – Bianca Miranda Cardoso (Leicester University)

SESSION ABSTRACT

In the history of research on Celtic Europe, southeastern Europe—particularly the Danubian regions—holds a place of primary importance. It was these “Celts of the East” who attacked Greece and Macedonia, and from this area that Brennos’ forces launched their attempt to plunder the sanctuary at Delphi in 279 BCE, as well as those who extended Celtic expansion to the Anatolian plateaus. According to the current research paradigm, these Danubian Celts are themselves considered non-native, with their presence in this region resulting from various population movements across the Celtic world, as recorded in historical sources. Archaeologically, these Celtic presences in southeastern Europe have been associated with the spread of La Tène material culture in these same regions. However, there is a dual epistemological issue in the way we study Celtic dynamics across Europe. On the one hand, we tend to view latenian remains as direct indicators of Celtic identity, which is problematic as material culture cannot be equated with the identity of its bearers. On the other hand, we often interpret archaeological evidence through phenomena attested by ancient authors, running the risk of subordinating our data to ancient literature. In this session, we aim to develop a methodologically focused approach. To refresh current discussions—where La Tène material culture and Celtic presence are often linked without sufficient evidence of causation—we propose to explain methodologically why, how, and within what limits we can move from correlation to causation, examining Celtic presence through archaeological data. This session will also invite a critical retrospective on the prevailing historiographical model concerning Celtic presence in southeastern Europe.

CONTRIBUTION ABSTRACTS

1664. ‘THERE AND BACK AGAIN’: LOOKING AT THE ‘CELTIC BALKAN MIGRATIONS’ BEYOND THE ETHNO-DETERMINISM

**Contribution format:** Oral  
**Contribution authors:** Vladimir Mihajlovic (University of Belgrade-Faculty of Philosophy)

It has been almost 20 years since Danijel Džino questioned the ancient literary narrative of massive Celtic migration to the Southeastern Europe, calling for the abandonment of ‘Brennus model’ and reconsideration of the 4th–3rd c. BCE events in the Balkans. Since then the ‘Celtic migration’ has been also reviewed from archaeological perspective, with scholars from the whole region trying to reassess the issue. The proposed views range from piecemeal colonization; through fusing of autochthonous and immigrant groups; through spread of La Tène material culture within the essentially native population; to ideological, social and cultural dynamics that transformed local communities without the large-scale population shift. Whereas the formerly held explanation of the Celts sweeping through the Southeastern Europe is not as dogmatic as it was, the question remains if this scenario is contested beyond the cursory acknowledgement that the situation must have been ‘more complex than previously thought’. In other words, despite the attempts at new models, most of the regional archaeologists have not renounced the traditional ethnodeterminism, but still actively use it, albeit less explicitly. The categories of the ‘Celts’ as clearly distinguishable people, and the ‘Scordisci’ as Celtic tribe that settled the south Pannonia and the Central Balkans, still features prominently in interpretations of the Late Iron Age material culture. The critiques of reductive and biased nature of such position, as well as the addressed evidential difficulties in sustaining this standpoint are simply being ignored, without offering any counterarguments. For these reasons, building on the previous theoretical and methodological considerations, I will try to further elaborate the alternative interpretational framework by using new and recently published archaeological evidence. I will pay particular attention to transitional period from the Early to Late Iron Age (4th–3rd c.), and revisit data coming from settlements, funerary sphere and bioarchaeology.

1872. GALATIANS – BIASED CHOICES IN INTERPRETATION AND WHAT WE ACTUALLY KNOW

**Contribution format:** Oral  
**Contribution authors:** Bianca Miranda Cardoso (University of Leicester)

The fact that Galatians who settled in Anatolia during the Hellenistic did not produce texts themselves and about themselves is a complicating factor in researching their identity. Literary evidence can hardly be ignored in



humanities, but it also presents its own challenges in interpretation, particularly when it is used to guide archaeological interpretation. The analysis of Greek and Roman texts that mention the Galatians has shown that when ancient authors called them Galatians, rather than Celts or Gauls, that might have been exactly what they meant and it should not need cultural translating. Interesting choices seem to have been made both by the ancient writers and by modern translators. Some of those choices have led to beliefs that ended up being taken as historical and academic consensus about who the Galatians were, particularly when it comes to ethnicity. Attempts to correct the terminology used by ancient writers might have actually made things more confusing than they needed to be because of racialised ideas that might have not even existed in antiquity. This presentation will share some results of my research on Galatian identity by looking at the original terms used by Greco-Roman writers to refer to Galatians, the choices made in the translations of those terms, and comparing them to accounts of the Galatian elite. The objective is to question what we understand as apparent consensus about the Galatians.

1516. THE CELTIC INFLUENCE IN CITIES OF THE NORTHERN BLACK SEA: THE EASTERNMOST FINDS OF LA TÈNE GLASS BRACELETS

**Contribution format:** Oral  
**Contribution authors:** Anzhelika Kolesnychenko (Institute of Archaeology of the National Academy of Sciences of Ukraine | The Cyprus Institute)

In the region between Lower Danube and the Southern Buh (Northern Black Sea region) the Celtic influence is becoming increasingly evident, as demonstrated by the growing number of archaeological finds. Among these discoveries are glass bracelets, which have been found in two key Greek cities: Olbia and Tyras. Until recently, the list of finds comprised: one bracelet fragment from Olbia and four from Tyra. (A. Ostroverkhov). Further research expanded the known sample of bracelets from Tyras and Olbia. To date, 11 fragments have been recorded from Tyras, likely representing eight distinct bracelets. The number of known Olbian finds has increased by two new specimens. These bracelets are different typologically and are made from different types of glass. Most are composed of dark blue glass, while one is crafted from clear glass with a faint yellow tint. They are typically decorated with yellow, white, and blue glass. With these discoveries, Olbia and Tyras mark the easternmost extent of ‘Celtic-type’ glass bracelets. This provides clear evidence of significant La Tène cultural influence in the Northern Black Sea region. However, the nature of this influence remains debated — whether it resulted from the direct physical presence of Celtic groups or from the movement of objects rather than people. The sharp increase in high-quality glass bracelet finds suggests a brief yet intense period of direct interaction.

1768. THE CURIOUS CASE OF THE “ILLYRO-LATENIAN” FIBULAE FOUND IN GREECE

**Contribution format:** Oral  
**Contribution authors:** Kevin Parachaud (TRACE -Toulouse)

This presentation explores an intriguing archaeological phenomenon: the presence of so-called “Illyro-Laténian” fibulae at several sites in mainland Greece, including Delphi, Thisbe, and Medeon of Phocis. These artifacts, although strongly inspired by La Tène models from Celtic Europe, reveal a cultural hybridization characteristic of the Balkans and more specifically the Illyrian area. Typological analysis distinguishes two sub-groups within this corpus. The first exhibits typically Illyrian features, while the second reflects technological and morphological influences from La Tène productions, with decorative elements imitating the characteristic bilateral springs. These distinctions point to a complex dynamic of cultural and technological transfers between Illyrian and Celtic worlds. Beyond their typology, the geographical distribution of these fibulae interrogates the existence of possible networks of goods circulation connecting the Balkans to mainland Greece. The discovery of such pieces on Greek sites, sometimes in sacred contexts, raises questions about their use. This study contributes to a better understanding of cultural interactions between the northern and southern Balkans during the 4th and 3rd century BC. It also demonstrates how the archaeology of adornments can offer valuable insights into cultural contact between Celts, Illyrians and Greeks in the south-eastern Europe.

1451. THE LATE LA TÈNE HORSEMEN WARRIORS OF THE SCORDISCI – POWERFUL SOCIAL AND IDENTITY GROUP IN THE SOUTH-EASTERN CARPATHIAN BASIN

**Contribution format:** Oral  
**Contribution authors:** Marko Dizdar (Institute of Archaeology, Zagreb)

During the Late La Tène phase in the south-eastern part of the Carpathian Basin various items of horse harness were found. This represents a change compared to the Middle La Tène when rare items of horse harness were found. Numerous and diverse items appear most often in the Late La Tène settlements of the Scordisci, while they are very rare in the graves in which on a symbolic level represent the buried warrior as a horseman. Important for the study of Late La Tène horse harness (LT D1) are the finds discovered in Veliki Vetren in south-western Serbia and in the probable context of a ritual site or sanctuary in Osijek in eastern Croatia. Also, can be added finds from

the Mlava river valley in northern Serbia, as well as numerous finds from settlements in the Vinkovci region in eastern Croatia. Along with iron horse bits of the Type XVI, different buttons, separators and buckles made of copper alloy appear. The diversity of the finds as well as the uniqueness of the form indicate that these are products of local workshops. For iron bits, analogies are known in the area of the Padea-Pangjurski Kolonii group, where these items are found in prominent warrior graves, which represents a difference compared to the graves of the Skordisci. For some items (buttons, separators), analogies are found in the south-eastern Alpine region and Central Europe, which indicates social connectivity between the Late La Tène warrior elites. The finds of horse harness at the sites of the Skordisci indicate the importance of Late La Tène horsemen warrior elite who had a prominent role and social importance in local communities. This was confirmed by the ancient sources which described the Scordisci as excellent horsemen warriors who rode horses all the way to the southern Balkans.

210 BURIALS AND TRANSITIONS IN THE MIDDLE AGES

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** Archaeothanatology, Transition Periods, Burials, Mortuary practice  
**Session organisers:** Stefan Eichert (Natural History Museum Vienna) – Mária Vargha (University of Vienna) – Ivo Stefan (Charles University Prague) – Nina Richards (Natural History Museum Vienna | Austrian Academy of Sciences)

SESSION ABSTRACT

Burial archaeology, archaeothanatology and connected research such as bioarchaeology, history, material culture or social anthropolog. are particularly interesting and important in, respectively, for times of transition. Societies - just like individuals - are more or less never in a state of equilibrium/homeostasis, and burial customs evolve over time. However, in times of significant transitions these changes might be reflected stronger and manifest more in mortuary practices. The topic this session wants to address i. how we can identify significant changes in burial customs and discuss their possible interpretations in connection with transitions in/of the actors behind the burials, be it on an individual, . local. or on the level of entire communities. Such developments occur throughout human history. However, this session focuses on the Middle Ages in Europe. Accordingly, the session focuses on themes of transitions of unclear impetus, like the change from cremation to inhumation burials in various populations, such as with Slavic “newcomers” in many parts of Europe in the later Early Middle Ages, where it could be connected either to religious reasons or other social evolvements. Another example could be the examination of the social/religious/cultural reasons for the end of the “Reihengräberfelder” in the Merovingian sphere or the ever-ongoing debates about any social transitions that can be made responsible for the end of grave furnishings in the Christian churchyards at the end of the early Middle Ages in the Eastern Alps, where, until the 11th c., at least jewellery was a common find in graves. . While the examples address themes of broad changes particularly from in and around Central Europe, the session is open for any contributions dealing with similar questions in Europe from the late Roman period/migration (~400) period into the beginning of the high Middle Ages (<1200), on a local, regional, or theoretical level.

CONTRIBUTION ABSTRACTS

1188. BACK TO THE ROOTS. MICRO-STORIES OF CHANGE IN LATE ANTIQUE BURIAL PRACTICES

**Contribution format:** Oral  
**Contribution authors:** Irene Selsvold (The Norwegian Institute in Rome, The University of Oslo)

Funerary practices play an essential role in our understanding of the religious transition in the medieval world. So too in the earliest stages of the Christianisation, the period where the narratives of conversion of burial practice and the spread of Christianity are anchored. The account of changing burial practices in the Roman catacombs are closely connected to the account of the emergence and growth of the Christian Church. Recent research has demonstrated that the Church and the Christianisation have had less impact on Late Roman/Early Medieval burial practices, including the Roman catacombs. This talk nuances this narrative by focusing on articulation of variation and difference in Late Roman/Early Medieval burial practices, with the Roman catacombs as its point of departure. In order to contrast and nuance large-scale and institutional narratives, this paper will use an intersectional lens on socio-economic status, gender, religious affiliation, and migration in Late Antiquity and the Early Middle Ages to explore burial practices and change on the micro-level.



372. BURIAL CUSTOMS AND CERAMIC TRENDS IN TRANSYLVANIA`S ROW-GRAVE CEMETERIES (5TH - 7TH CENTURIES)

Contribution format: Oral  
Contribution authors: Barbocz Beata (Babeş - Bolyai University)

Row-grave cemeteries spread across Europe between the 5th and 7th centuries, with Transylvania marking their easternmost extent. These cemeteries are characterized by west-east oriented graves, organized in rows, where the deceased were buried in a supine position (decubitus dorsalis). They were interred with their clothing and grave goods, including weaponry, jewelry, and household items. Pottery played a significant role in funeral rites, serving both ritualistic and practical functions. By analyzing vessel manufacturing techniques, shapes, firing methods, and decorative styles, we can trace changes from the collapse of the Hunnic Confederation to the establishment of Avar rule. These transformations reflect shifts in cultural influences, technological advancements, and burial practices. Through case studies and statistical analyses of cemeteries, combined with pottery research, we can better understand the evolution of Gepid-associated burial traditions in Transylvania. Examining the significance of funerary inventories allows us to reconstruct patterns of social status, trade connections, and cultural interactions. Additionally, considering other grave goods alongside pottery provides a more comprehensive picture of this period, shedding light on broader societal changes during the 5th–7th centuries.

2237. IMPRINT OF SOCIAL, CULTURAL AND ECONOMIC CHANGES WITHIN THE AVAR EMPIRE. THE TESTIMONY OF THE KÖLKED SITE

Contribution format: Oral  
Contribution authors: Zsuzsanna Hajnal (Hungarian National Museum) – Balázs Gyuris (HUN-REN Research Center for the Humanities, Institute of Archaeogenomics) – Norbert Farago (Eötvös Loránd University, Faculty of Humanities, Institute of Archaeology) – Tamás Szeniczey (Eötvös Loránd University, Faculty of Science, Departament of Biolgical Anthropology) – Tivadar Vida (Eötvös Loránd University, Faculty of Humanities, Institute of Archaeology) – Anna Szécsényi-Nagy (HUN-REN Research Center for the Humanities, Institute of Archaeogenomics)

A multidisciplinary study of one of the key sites for understanding the background of diverse, varied material culture of the late 6th - 7th centuries in the Carpathian basin has provide. an insight view into a community, which had strong and intense connections with the late antique Mediterranean but even closer relations to the Meroving West and to the former Germanic traditions of this territory. In Kölked-Feketekapu 1325 burials and five hectares (with more than 500 features) of the community’s settlement were excavated, which could provide a representative section of the Carpathian basin’s social, cultural and economic history between mid-6th - early 9th century AD. Distinctive household system within the settlement and West European type of long houses are unique in the Avar Empire. The circular ditch system presumably for rituals and jurisdiction practices tied to Germanic costumes were observed in the Early Avar period. A Reihengraberfeld and separate burial grounds within the household units belonged to this settlement. A complete change was detected during the last third of 7th c.: the settlement structure, the burial costumes, and even the physical place of the cemeteries were affected. Discernible acculturation and assimilation processes and newcomer communities of different original traditions living side-by-side in the later era, complemented the effects of a social, economic and possibly political change visible all over the Avar Empire as well. Ancient DNA and isotope analyses (360 aDNA, 121 87Sr/86Sr, 75 δ13C - δ15N samples) within the framework of the ERC HistoGenes project complemented the classical archaeological study of the burial rite and grave goods, which were integrated with household archaeology and physical anthropological research. Kölked provides an unpaired possibility by interpreting and understanding the transitional processes in both burials and settlement with enlightening the forming forces behind them and the organizing factors of these changing societies.

1111. BIOARCHAEOLOGICAL ANALYSIS ON AVAR-PERIOD CEMETERY IN CROATIA SHEDS LIGHT ON OSTEOLOGICAL AND DEMOGRAPHIC TRANSITIONS

Contribution format: Oral  
Contribution authors: Angelica Caraballo-Santiago (University of California) – Mario Novak (Centre for Applied Bioanthropology, Institute for Anthropological Research, Zagreb | Faculty of Humanities, University of Primorska) – Josip Burmaz (Kaducej Ltd.) – Goran Skelac (Geoarheo Ltd.)

Between 2023 to 2024, approximately two hundred burials were excavated from a site near the city of Beli Manastir in eastern Croatia, within the Carpathian Basin. Preliminary analysis and observations of the cultural objects, burial practices, and skeletal remains identify this assemblage and site as an Avar-period cemetery, dating to the transition from the Migration Period to the Early Middle Ages (6th-9th century CE). This discovery presents a

valuable opportunity to investigate the biological and cultural characteristics and practices of a population living through this period of transition. This presentation outlines the preliminary osteological findings from an ongoing bioarchaeological analysis, integrating paleodemographic, paleopathological, and osteometric approaches to reconstruct aspects of life, health, and mortuary traditions. The demographic profile of the cemetery, including age-at-death distributions and sex ratios, provides insights into population structure, fertility, and mortality trends. Palaeopathological and osteometric analyses reveal stress, disease, trauma, and biological variation, offering insights into activity patterns and population affinities within the site. By contextualizing this dataset within regional comparisons of Avar and non-Avar sites, we explore emerging trends related to biological sex, age, and social differentiation, shedding light on variations in health, status, and cultural integration. This study represents the first step of a broader interdisciplinary investigation, with future isotopic analyses planned to complement osteological and archaeological data. These ongoing efforts will contribute to larger discussions on health, mobility, and sociocultural interactions in early medieval Europe, deepening our understanding of population dynamics during this transformative era.

564. FROM PAGAN ŽUPANS TO CHRISTIAN FOUNDER TOMBS: SOCIAL, RELIGIOUS, AND POLITICAL TRANSITIONS IN THE EASTERN ALPS

Contribution format: Oral  
Contribution authors: Stefan Eichert (Natural History Museum Vienna)

This paper examines burials from the 7th to the 10th/11th century, interpreting them not only from an archaeological perspective but also within a (cultural) anthropological and sociological framework. The study focuses on sources from the Eastern Alps, where the Slavic principality of Carantania was once located. A particularly significant site for this discussion is Grabelsdorf in southern Carinthia. Here, we can trace the development of a local community from around the year 700, observing various social and cultural transitions. On one hand, burial sites reveal a certain stratification of society, raising the question of whether the evidence suggests an early form of hereditary leadership or supremacy over the local population. Around the year 800, the process of Christianization becomes evident, marking another major transformation—primarily religious but not exclusively so—which had a profound impact on the landscape. This shift is also reflected in burial practices investigated through archaeology. Similar patterns can be observed in other sites across Styria, Lower Austria, and Upper Austria, indicating a population that shared common developments and underwent the same transitions.

1064. REEVALUATION OF THE KÖTTLACH CEMETERY

Contribution format: Oral  
Contribution authors: Martin Obenaus – David Russ (Natural History Museum Vienna)

The cemetery of Köttlach was re-examined as part of a university course at the University of Vienna and subsequently supplemented with hitherto unpublished material. The historical interpretation was formerly based on the incomplete material record from 1943, which is why a new presentation of all known finds from the cemetery area appears justi-fied. The newly published finds could indicate that the cemetery was already in use during the Late Avar period. However, the majority of the materials, most likely originating from graves, still date to the Köttlach II phase according to J. Gies-ler. The biographies of selected objects are presented to explore the possibility of a church location in the vicinity of the cemetery. Other cemeteries with mixed inventories—such as Thunau, Langenschönbichl, Bad Deutsch-Altenburg Kirchenberg, Judendorf-Straßengel, Ptuj, and possibly St. Pölten—are referenced and compared with the finds from the Köttlach cemetery to illustrate the largely undocumented grave contexts. The material remains from the cemetery are embedded within their cultural and geopolitical setting, with a particular focus on connections to the neighbouring Bijelo Brdo region. These connections are used to discuss possible acculturation processes with Conquest- and Árpád-era Hungary before and during the Ottonian expansion of the frontier eastward. Köttlach serves as a model case for examining cultural and religious transitions and disruptions at the boundary between the Alpine region and the edge of the Eurasian steppe at the end of the first and the turn of the second millennium.

326. WEANING AGE AS A HIGH-RISK TRANSITION IN A CHILD’S LIFE

Contribution format: Oral  
Contribution authors: Nina Richards (Natural History Museum Vienna | Austrian Centre for Digital Humanities and Cultural Heritage)

Weaning a child involves a change in diet from breast milk to introducing solids and liquids. The new diet is associated with an increased health risk for the children. Germs are ingested through food and passive immunisation through breast milk is coming to an end. Particularly in pre-industrialised communities, this can lead to illness and, in the worst case, to the death of a child. In the context of the paper, the detectability of the weaning age by analysing stable isotopes will be discussed using the example of the Arpadian cemetery of Oberleiserberg



(Austria). Based on the cemetery of the early 11th century, the implications of this transition will be demonstrated and discussed against the background of other early medieval examples. The Oberleiserberg was used as a burial ground for one or more small communities in the late 10th and first half of the 11th century. The high proportion of children in the graves is particularly striking. Two-thirds of those buried did not reach adulthood, the majority of the buried children died before their third birthday. This makes the cemetery an ideal material basis for analysing the age of weaning as one of the most important and risky transitions in a person’s life in a pre-industrial community.

**456. FAITH IN TRANSITION: THE TRANSFORMATION OF BURIAL LANDSCAPES IN MEDIEVAL CENTRAL EUROPE**

**Contribution format:** Oral  
**Contribution authors:** Maria Vargha (University of Vienna)

The shift from field cemeteries to churchyard burials was one of the most tangible changes brought about by the Christianisation of medieval Central Europe. Yet, this process was far from straightforward. Traditional scholarship has often presented burial transitions in a rigid binary—pagan field cemeteries versus Christian churchyards—ignoring the rich archaeological evidence that reveals a far more complex and gradual transformation. On a closer investigation, transitional cemeteries, where burial customs did not conform neatly to religious categories but instead reflected a period of flux, shaped by local traditions, shifting religious identities, and evolving ecclesiastical structures, can be found across the Medieval landscapes. This talk explores the diversity of these burial transitions within the framework of the ERC-StG project RELIC, which investigates how rural communities on the eastern fringes of the (later) Holy Roman Empire (10th–12th c.) became integrated into new religious and political structures. By examining how church foundations interacted with earlier cemeteries and how burials reflected different stages of religious transition, this research highlights the complexities of medieval faith at the local level. By integrating all available data to contextualise these cemeteries in the landscape, this study investigates the intertwined ways in which cemeteries and the social, economic, religious and physical landscape impacted each other and challenges the idea of a linear Christianisation process. Instead, it argues that medieval cemeteries were dynamic spaces, where faith, authority, and tradition intersected in unexpected ways. By reconsidering transitional cemeteries, we gain a deeper understanding of how religious change took shape beyond the elite sphere—within the burial grounds of ordinary people.

**202. DOWNSTREAM FROM BELGRADE: MEDIEVAL CEMETERIES AND BURIAL PRACTICES IN THE DANUBE REGION OF THE CENTRAL BALKANS**

**Contribution format:** Oral  
**Contribution authors:** Milica Radišić (Institute of Archaeology, Belgrade)

During the medieval period, the Danube region of the Central Balkans (the Serbian Danube region) was a dynamic transitional area, functioning as both a borderland and a contact zone. From the south and east, the region was influenced by the Byzantine Empire, the Bulgarian Khanate/Empire, and the Kingdom of Serbia, while to the north of the river lay the territories of the Avar Khaganate and the Kingdom of Hungary. Its strategic location, combined with shifting administrative boundaries, facilitated the movement and interaction of diverse populations, shaping local social and cultural practices. This paper examines the development of medieval cemeteries, focusing primarily on those from the 9th to the 13th centuries, and analyses how broader historical dynamics influenced local funerary customs. It is important to emphasise that there is no evidence of cremation burials in this part of the Danube region. Inhumation in row cemeteries, often accompanied by the personal adornments of the deceased, remained the predominant burial practice throughout the medieval period. Grave goods such as military items and food offerings are relatively rare. However, over time, significant changes took place, particularly in the spatial organization of cemeteries, along with a gradual decline in the inclusion of attire items in graves. Early medieval cemeteries were frequently situated near or within Late Roman fortifications and buildings, highlighting the continued strategic significance of these sites. By the High Middle Ages, burial grounds underwent significant spatial transformations, with cemeteries often being relocated to new areas. In contrast to the widespread integration of churchyard cemeteries across Christian Europe, burial sites in the Danube region were only occasionally associated with churches, reflecting a distinctive regional pattern.

**2211. THE SAME OR DIFFERENT? PEOPLE AND FUNERAL RITES IN MEDIEVAL MAZOVIA, POLAND**

**Contribution format:** Oral  
**Contribution authors:** Dariusz Blaszczyk (Faculty of Archaeology, University of Warsaw)

One of the areas that were part of Poland in the Middle Ages was Mazovia, a region situated on the central Vistula River. Along with the Christianization of Poland, which began in the 2nd half of the 10th century, inhumation appeared in Mazovia, replacing the previously used cremation rite. However, Mazovia was different from other

regions of Poland at that time in the occurrence of characteristic graves with stone constructions in the form of enclosures and pavements. For some time, it was believed that only this type of funeral rite was used in Mazovia. However, with time, parallel row cemeteries with pit graves without enclosures and stone pavements began to be discovered, the same as those occurring in other regions of Poland at that time. It turned out that graves with stone structures were not the only form of funeral rite practiced in medieval Mazovia. In connection with this, the question arose who were the people who buried their dead in cemeteries with and without stone structures, whether they represented the same or two different populations, and where the idea of stone structures came from. Based on the study of the ratio of stable strontium isotopes <sup>87</sup>Sr/<sup>86</sup>Sr, the issue of mutual relations of the populations burying their dead in two different forms of graves will be discussed in terms of their provenance, mobility, and possible mutual interpenetration. In turn, based on radiocarbon dating, temporal relations will be traced, with particular emphasis on the beginning and end of the use of both types of cemeteries. The research was carried out as part of the project “Populus Masoviae Medi Aevi and the mystery of the century: who was buried in graves with stone enclosures in medieval Mazovia?” (NCN 2019/33/B/HS3/02453).

**493. BETWEEN PAGAN TRADITIONS AND CHRISTIAN CONVENTIONS: BURIAL TRANSITIONS IN MEDIEVAL POLAND**

**Contribution format:** Oral  
**Contribution authors:** Kinga Durczak (Antea Group)

The transition from pagan to Christian burial customs in medieval Poland reflects a broader process of religious, social, and political transformation. One significant yet often overlooked aspect of this shift is the practice of shrouding the deceased, a widespread tradition across different cultures and time periods. While archeothanatological research has explored shrouding in Mesolithic and Islamic contexts, its role in early Christian burial traditions remains underexamined. This study investigates burial transitions in Poland from the late 10th to the 12th century, focusing on the impact of Christianization, state formation, and external cultural influences. Using archaeological data from cemeteries across Greater Poland this research examines key funerary transformations, including the decline of cremation, the standardization of east-west oriented inhumations, and the disappearance of grave goods such as weapons and jewellery under Church influence. Special attention is given to transitional burial types, including so-called “deviant burials” (e.g., individuals buried with stones, bound limbs, or in prone positions), which may reflect lingering pre-Christian beliefs or societal anxieties surrounding death and the supernatural. By applying an archeothanatological approach, this study explores shrouding as an integral part of early Christian funerary customs before the widespread adoption of wooden coffins. Understanding these burial transformations offers insights into the negotiation of new ritual behaviours in the context of religious conversion. By integrating bioarchaeological data with historical sources, this research contributes to broader discussions on how burial archaeology serves as a lens for examining the interplay between tradition and reform in medieval Europe.

**452. TROUBLED LIVES IN TRANSITION. OSTEOBIOGRAPHIES FROM THE EARLY MEDIEVAL BURIALS FROM GRUMENTUM (BASILICATA, ITALY)**

**Contribution format:** Poster  
**Contribution authors:** Eveline Guidi (Department of Ancient World Studies, Sapienza University of Rome | Bioarcheology Service, Museum of Civilizations, Rome) – Viola Cecconi (Department of Odontostomatological and Maxillofacial Sciences, Sapienza University of Rome | Bioarcheology Service, Museum of Civilizations, Rome) – Jessica Melchiorre (Bioarcheology Service, Museum of Civilizations, Rome) – Priscilla Zanutel (Independent Archaeologist) – Adele D’Avino (Bioarcheology Service, Museum of Civilizations, Rome) – Alessandra Sperduti (Bioarcheology Service, Museum of Civilizations, Rome | Department of Asia, Africa and the Mediterranean, University of Naples “L’Orientale”)

The Early Middle Ages in Italy was a period marked by significant transition. Following the fall of the Roman Empire, many communities faced political, social, and economic decline. This is evident from the progressive depopulation, de-urbanization, and reduction in economic and trade activities. Additionally, invasions and warfare further destabilized the socioeconomic and political organization in various Italian regions. This downturn is also reflected in the funerary customs of the time, as people abandoned extensive, well-planned necropolises located along major urban roads in favor of smaller burial plots within city walls. These new burial sites were often near disused buildings or places of significance, such as churches or chapels. Several studies also suggest that living conditions deteriorated during this era. In this context, we present archeoanthropological data from the urban center of Grumentum. After a prosperous period during the Roman Imperial Age, the city experienced severe economic decline and gradual depopulation of its urban area. During this time, a small burial ground containing 18 tombs—with both single and collective depositions—was established near the Basilica di San Marco in the southern part of the city. The paleopathological analysis revealed that 80% of the individuals



examined suffered from severe oral diseases, with multiple carious lesions, abscesses, and antemortem tooth loss. Furthermore, 89% of the sample displayed severe signs of periostitis. We also identified cases of spine and sacroiliac ankylosis, osteomyelitis, various traumas (also in subadults), and activity-induced bone alterations. These findings confirm that the living conditions in Grumentum were likely harsh, aligning with the historically noted socioeconomic decline of the city.

211 FOCUS ON RESILIENCE - SUSTAINABLE TOURISM AND CLIMATE-ADAPTED HERITAGE MANAGEMENT

Session theme: 7. Climate Change in the Past and Present  
Session format: Round table  
Session keywords: Resilience, Sustainable Tourims, Climate Change, Heritage Management, Communities  
Session organisers: Sofia Fonseca (Teiduma, Consultacy on Heritage, Culture and Sustainability) – Ben Thomas (Society Of Architectural Historians) – Peter Biehl (University at Buffalo)  
Session speakers: Peter Biehl (University at Buffalo) – Vibeke Vandrup Martens (NIKU – Norwegian Institute for Cultural Heritage Research) – Sofia Fonseca (Teiduma, Consultacy on Heritage, Culture and Sustainability) – Ben Thomas (The Society of Architectural Historians)

SESSION ABSTRACT

This session, co-organized by the Community on Archaeology and Tourism and the Community on Climate Change and Heritage, addresses the critical impacts of climate change, and heritage tourism on actively managed archaeological sites. As heritage sites worldwide face increasing risks from climate-induced factors, the session seeks to build on EAA’s commitment to climate action, as stated in the 2021 Kiel Statement on Archaeology and Climate Change which encourages EAA members to develop recommendations and best practices to confront climate change’s impacts on archaeological heritage. The session will feature panel presentations followed by an interactive discussion, focusing on emerging challenges for archaeological heritage management, identifying innovative solutions that are occurring at the nexus of climate adaptation and sustainable tourism management. Experts from both communities will share insights on preserving archaeological heritage under climate pressure, highlighting case studies and strategic approaches that have proven effective. The discussion will prioritize the role of local communities, integrating their knowledge and perspectives to promote resilient, culturally inclusive heritage tourism practices. As an outcome, participants will collaboratively draft a document tentatively titled the EAA Belgrade Statement on Sustainable Tourism and Climate-Adapted Heritage Management. This statement will outline actionable recommendations to support EAA’s focus on the protection of archaeological heritage especially in vulnerable tourism contexts where resilience to climate threats requires adaptive management strategies. The session will also provide a foundation for future collaborative actions between the EAA communities concerned, fostering a network that can continue to address climate-related challenges and integrate adaptive strategies into the management of tourism at archaeological sites. By bringing together EAA members with diverse expertise, this session aims to produce a set of targeted proposals for future EAA initiatives, strengthening the organization’s influence on heritage preservation in an era of unprecedented climate change.

213 MOVING FORWARD: NEW APPLICATIONS AND DEVELOPMENTS IN ARCHAEOLOGICAL MOBILITY STUDIES

Session theme: 5. Finding the way! Archaeological sciences and opening new research perspectives  
Session format: Regular session  
Session keywords: Mobility, Computational Methodologies, Connectivity, Maritime Movement, Trade and Exchange, Migration  
Session organisers: Andrew Mclean (Institut Català d’Arqueologia Clàssica (ICAC) | Barcelona Supercomputing Center) – James Page (Barcelona Supercomputing Center) – María Coto Sarmiento (Centre for Urban Network Evolutions (UrbNet), Aarhus University) – Adam Pažout (Universitat Autònoma de Barcelona, Department of Antiquity and Medieval Studies)

SESSION ABSTRACT

The approaches available for modelling mobility and connectivity across archaeological landscapes are numerous and diverse. Before the application of more computational and quantitative methodologies the qualitative research was largely restricted to an understanding of where objects and people were and where they later ended up, with little concrete understanding of the journey between the two. In recent years, techniques such as network analysis, agent-based modelling simulations and machine learning have all become far more prevalent across archaeology. This has been accompanied by a wider use of computational techniques in mobility studies. However,

many of these archaeological studies remain mired in basic, and even outdated, techniques, even as mobility studies in other disciplines develop with pace. There is a tendency to use basic Least Cost Path analysis, or use simple cost surfaces, apply them to a study region and move on. There can certainly be significant merit to such studies, but we seek to push the field beyond this and think about more innovative and nuanced techniques and applications for understanding past mobility. We welcome papers focusing on using cutting edge techniques to understand past mobility and connectivity, with no geographic or temporal restriction. Mobility studies should also not be limited to the terrestrial, and so we particularly welcome any papers discussing combined terrestrial, maritime or fluvial studies. New applications for more traditional techniques, such as Least Cost Path analysis, are also welcome. We hope that this session will bring together a diverse range of researchers to share in not only new results from mobility studies, but importantly, on how we can build and expand upon existing techniques and applications of past mobility studies.

CONTRIBUTION ABSTRACTS

962. IDENTIFYING NON-LOCAL INDIVIDUALS AND PREDICTING THE TIME SINCE MIGRATION USING A MACHINE LEARNING APPROACH

Contribution format: Oral  
Contribution authors: Andrea Göhring – Daniyal Kazempour – Jan Bensien – Sweety Mohanty – Claudius Zelenka – Matthias Renz – Peer Kröger (Kiel University) – Gisela Grupe – Amei Lang (University of Munich)

Provenance reconstruction using strontium and lead isotope ratios can produce complex multi-dimensional fingerprints that challenge traditional data analysis methods. Identifying non-local individuals who migrated between sites or regions is a key task, as their isotopic signatures in compact bone are a mixture reflecting the last about 20 years prior to death, and accordingly are a mixture between the local isotopic signatures of the origin and destination environments. However, the detection of early migrants remains particularly challenging due to bone remodeling and the resulting progressive isotopic mixing in compact bone tissues. This study presents a machine learning approach using Support Vector Machines (SVMs) to identify non-local individuals based on their multi-isotope fingerprints. Individuals who migrated between two sites can be understood as so-called “in-between instances” or IBIs between the isotopic clusters representing these two sites. These IBIs exhibit a mixed isotopic signature, resulting from a mixture of the local isotopic signatures of these sites. The isotope fingerprints of individuals who migrated early in life are more similar to the local isotopic signature of the site to which they migrated. Using synthetic data, we show that our model effectively classifies IBIs - and, thus, immigrated individuals - under different conditions, capturing subtle variations in isotopic composition. When applied to an archaeological multi-isotope dataset, the approach successfully identifies non-local individuals, including early migrants. In addition, the method predicts the “level of in-betweenness”, which enables an estimation of the time elapsed since migration (in years before death) by incorporating bone remodeling rates. By providing a quantitative framework for assessing migratory events, this approach refines mobility studies and enhances the resolution of provenance reconstructions.

1068. PROCESS-EXPLICIT MODEL REVEALS MOTIVATIONS FOR ROAD CONSTRUCTION IN PAST SOCIETIES

Contribution format: Oral  
Contribution authors: Joe Lewis – Enrico Crema (University of Cambridge)

The position of past roads in the landscape is a trade-off between a preference for straightness and the influence of slope gradient, conditioned by political and economic motivations of a society. Yet, our understanding of this trade-off and its relationship with political and economic motivations is poor, hindered by qualitative studies that fail to explain the variability of past roads and non-comparative quantitative studies. Here, we introduce a process-explicit model that simulates roads in the landscape to estimate the influence of slope gradient on well-evidenced Roman roads in Roman Wales. Our results reveal substantial variability in this influence, with roads not conforming to a single unifying preference for straightness. We relate the influence of slope gradient with road straightness to predict political and economic motivations for road construction in the Roman Empire. This relationship offers a unified, comparative framework to understand variability in past roads and reveal insights into the political and economic motivations of past societies.

1672. WHAT PROMOTES HUMAN MIGRATION? SPATIAL MODELS TO RECONSTRUCT THE REGIONAL GEOGRAPHIC VARIATIONS IN THE SUB-SAHARAN EIA

Contribution format: Oral  
Contribution authors: Alexes Mes (University of Cambridge)



Behind all large-scale human dispersals lies a body of literature seeking to categorise the movement as demic migration vs. acculturation. The reality in any human movement is far more complex: the units of migration (individuals, families, communities), as well as the localised tempo and direction of dispersal shifted frequently. From around 4,000 BP, large-scale southern migrations expanded throughout sub-Saharan Africa resulting in major subsistence and cultural changes. The dispersal is associated with an ‘EIA cultural package’ consisting -- wholly, or in part, at various times -- of a more sedentary lifestyle, thick-walled pottery, iron metallurgy, cattle-keeping and crop cultivation. Cultural traits and subsistence strategies evolved through multiple interactions and shifting ecological environments. Despite this, some past archaeological studies have implicitly understood EIA expansion in sub-Saharan Africa as an expansion of a single, continuous event; although whether the population spread continuously, in waves, or following a process of jumps remains an underlying question. This paper explores the ‘EIA cultural package’ as a series of regional and complex movements. The arrival times of these traits in geographic sub-regions are examined using a Bayesian ICAR model, where a hierarchical structure is introduced to account for bias introduced by sample interdependence. The use of an ICAR structure allows the model to capture the underlying spatial autocorrelation in the data and provide broad arrival estimates in regions where we have no prior information. This framework is then built on by considering if and how ecological factors – such as temperature and rainfall – resulted in varied frictions to the dispersal. Bayesian wombling methods are used to quantify to what extent these potential drivers explain the observed differences in the dispersal process. Throughout, biases which influence the data – such as uneven spatial and temporal sampling density – are acknowledged and measurement uncertainty is accounted for.

**1052. THE CONSTRUCTION OF THE ANDALUSI LANDSCAPE CONNECTION NETWORK IN THE NORTH-WEST OF THE DISTRICT OF LLEIDA (VIII-XIII CENTURIES)**

**Contribution format:** Oral  
**Contribution authors:** Raul Céspedes (Universitat Autònoma de Barcelona)

Historical roads are the physical trace of the political entities that built them. However, their use comprehends extensive chronologies. Many of the historical roads have been subject to constant transformation as a result of the new economic and political needs that have arisen throughout History. In the Andalusí district of Lleida, the complex network of roads exhibits the will to connect settlements, productive spaces and fortresses. Some specialists determined that the use of the previous roman routes continued. However, in this proposal it will be reviewed the extent of that said continuity and its impact in the established road network between VIII and XII centuries. Although, the construction of new settlements and fortresses led to the creation of new routes. The fortresses, the use of grazing areas and some water collection structures along the roads show us how the hierarchy in the Andalusí cronology was oriented towards the connection of fortified areas to ensure the territorial control. While at the same time, maintaining roads for stationary livestock farming that transitioned between the Llitera plain and the mountain areas of Ribagorça. This study will be under the methodological framework of Archaeology of Landscape. It will determine the Andalusian Road network by fieldwork, the analysis of medieval written, toponymy, the use of aerial maps and old cartography. In this contribution I will analyse the historical landscape of the northwestern territory of the Andalusí district of Lleida as the establishment of a complex connection network that ensures the economical and productive activities along the district.

**466. MODELLING THE BLACK DEATH AND SOCIAL CONNECTIVITY IN MEDIEVAL ENGLAND**

**Contribution format:** Oral  
**Contribution authors:** Tudor Skinner (Durham University)

The Black Death of 1348–9 stands ‘unchallenged as the greatest disaster in documented human history’. Although largely thought to be caused by *Yersinia pestis*, it is still unclear how the disease spread so quickly in a preindustrial society. Durham University’s Modelling the Black Death project applies and adapts the JUNE framework - new individual-based modelling developed in response to the COVID-19 outbreak - to simulate the spread of this disease. While the COVID-19 implementation of JUNE used modern census data about the population and a range of further information about their daily lives, such as work patterns, travel, and social activities, this project revises and reformulates this framework for mid-14th-century England. The ‘static’ part of this model reconstructs major characteristics of the population – location, age, sex and occupation – via historical and archaeological sources. The ‘dynamic’ elements of this model will encode probabilities of everyday behaviour, corridors of movement and differing vectors of infection, with a particular focus on zoonotic reservoirs of disease. Successful modelling of *Yersinia pestis* will shed light on the spread and transmission of what remains a modern-day threat, as well as that of other contemporary and historically-attested pandemics. In tandem with this, the model will also provide new insights into the social connectivity of late medieval society by identifying how people likely interacted with one another during one of the worst pandemics in global history.

**1828. MODELLING LEAST-COST PATH NETWORKS IN THE ROMAN LEVANT: FILLING THE GAPS IN THE ROMAN ROAD NETWORK?**

**Contribution format:** Oral  
**Contribution authors:** Adam Pažout (Universitat Autònoma de Barcelona)

Our understanding of the Roman road network in the Levant (provinces of Syria, Judaea, and Arabia) is heavily skewed to the southern part of the region where most of the previous scholarship was concentrated. The northern Levant (roughly between Taurus Mts. in the north and Aleppo Plateau in the south) was comparatively less studied in the past and the reconstructed Roman road network is much sparser. In this paper an approach to ‘fill the gaps’ in the road network using methods of network science and least-cost path modelling is presented and evaluated. Initially, the Roman road system in the Levant is represented as a graph with nodes representing Roman sites included in the Pleiades dataset. This model is analysed for its network properties, with focus on the node metrics (degree centrality and betweenness centrality) across different types of nodes (cities, settlements, road stations). ‘Under-connected’ nodes in the road network are in this way identified and potential road connections are modelled for them through application of theoretical least-cost networks (TLCN). TLCNs are planar networks defined as Gabriel graph, Relative Neighbourhood Graph and K-neighbour graph, where Euclidian distance is replaced by a cost distance. Cost distances are calculated over a conductance surface representing topographical constraints (slope, topographic position index, local vector ruggedness measure) identified on surviving segments of Roman roads in the region. By comparing TLCN with Roman road network it is possible to identify a) ‘under-connected’ nodes (nodes with low degree centrality), and b) suggest possible connections for these ‘under-connected’ nodes based on the TLCN, where corroborated with additional archaeological or historical evidence.

**540. VISUALISING SARCOPHAGUS TRADE IN THE INLAND BALKANS: A GEOSPATIAL APPROACH**

**Contribution format:** Poster  
**Contribution authors:** Ines Ferjan (University of Edinburgh)

This study employs geospatial modelling techniques to reconstruct and visualise potential sarcophagus trade routes in the inland Balkans. Sarcophagi, often carved from high-quality marble such as Prokonnesian and Thasian, were transported over vast distances from Mediterranean quarries to inland provinces like Moesia Superior. The viability of these transport networks depended on topographical constraints and economic considerations. While previous studies have examined stone trade routes in this region to some extent, geospatial models have not yet been applied to reconstruct potential trade routes. Although fluvial transport along the Danube played a crucial role, many sarcophagi reached their destinations via complex overland networks. By integrating GIS-based movement modelling and ancient road systems, this research identifies optimal trade pathways that may otherwise be overlooked in landscape studies. Key overland corridors, originating from the major hubs along the Adriatic and Aegean Seas, are examined using advanced geospatial approaches, such as network-based modelling (e.g., Circuit Theory), to assess their feasibility as transport routes, taking into account the logistical challenges posed by the heavy cargo of sarcophagi. By incorporating landscape analysis, this study explores how rivers, mountains, and road networks shaped regional economic interactions. However, the accuracy of these reconstructed routes relies on corroborating geospatial predictions with archaeological evidence. Overall, this study provides a novel approach to visualising Roman trade by blending archaeological evidence with computational modelling, offering deeper insights into the logistical challenges and economic decisions that influenced sarcophagus distribution.

**215 AROUND THE BLACK SEA: MIGRATIONS AND MOBILITY THROUGH PLAINS, MOUNTAINS AND SEA IN EARLY HOLOCENE (C.10 000-4 000 BC)**

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Regular session  
**Session keywords:** The Black Sea, migrations, mobility, Neolithization, geo-spatial archaeology, bioarchaeology  
**Session organisers:** Marta Andriiovych (University of Oxford) – Catalin Lazar (University of Bucharest)

**SESSION ABSTRACT**

The Black Sea was a key region in European Prehistory, mainly due to its special geographical positioning - the contact area between Anatolia, the Balkans, the North Pontic Steppes, the Mediterranean Sea, the Pontic, Caucasian and the Crimean Mountains. The region is home to over 1000 prehistorical sites and features diverse landscapes, including deltas, hills, dunes, coast, mountains and massive grassland steppes that define the Black Sea basin with ecological potential for the spread of early farming and herding. The climate zones range from continental and Mediterranean to subtropical and experienced five major ice rafting events. This setting has



been attractive for human groups since the Paleolithic period. During the spread of Neolithization, the West coast of the Black Sea was crucial for the dispersal of agriculture and husbandry to Europe and Asia. The prehistoric communities that moved along the rivers and valleys of the area, over the mountains and highlands, to find sources, new farming settings, and new places to settle contributed to extending the main route of the Neolithic lifestyle. The session will examine the interplay of environmental, anthropogenic, climatic, and cultural factors shaping prehistoric resilience and mobility around the Black Sea. Subjects for discussion cover wide questions, from the isotopic and paleogenetic data to paleoenvironmental, paleoclimatically and geo-hydrological investigations, from cross-cultural movements and interconnection across the region to local seasonal migrations, mobility connected with the search for resources and climatic changes, and other reasons for humankind being on the move and the spread of innovations in the region in the Early Holocene. We welcome contributions from archaeologists, bioarchaeologists, geoarchaeologists, geneticists and others interested in the Black Sea region through the early-mid Holocene.

CONTRIBUTION ABSTRACTS

1348. ANTHROPOLOGICAL CONTINUITY AND MIGRATIONS IN THE MESOLITHIC-NEOLITHIC OF THE NORTHERN BLACK SEA REGION

**Contribution format:** Oral  
**Contribution authors:** Inna Potekhina (Institute of Archaeology of the NAS of Ukraine)

Our understanding of the origin and anthropological composition of the Mesolithic and Neolithic populations of the Northern Black Sea (North Pontic) Region has been significantly improved by large-scale studies of ancient DNA, the results of which have been considered in a wide range of synchronous groups of Western Eurasia. The genetic continuity of the prehistoric population of the Middle and Lower Dnieper Basin for 4000 years, from the Mesolithic to the end of the Neolithic, in contrast to almost all other parts of Europe, has been revealed. Migration hypotheses regarding the Neolithic tribes of the Dnieper-Donets cultural and historical region have been considered, some of which have traditionally been associated with the arrival of small groups of late Mesolithic hunter-gatherers from Northwestern territories in the Middle and Lower Dnieper regions, which has been confirmed by archaeological and anthropological evidence. New archaeogenetic data have also revealed a possible migration here at the beginning of the Neolithic era from the southwest. In two Neolithic burial grounds in the North Pontic Region, rare for the European Neolithic Mt haplogroups were discovered, which indicate very ancient contacts with groups of Eastern Eurasia. The consistency of the results of anthropological and genetic studies confirms their reliability and allows us to complement and expand the possibilities of studying the prehistoric population of Ukraine using these research methods.

2333. THE SPREAD OF AGRICULTURE TO THE NORTHERN BLACK SEA: SUMMARIZING THE STATE OF RESEARCH

**Contribution format:** Oral  
**Contribution authors:** Marta Andriiovych (University of Oxford)

In the middle of the 20th century, the Neolithic period in eastern Europe was defined above all by the spread of ceramics, including in the northern Black Sea region. In the broad context of world archaeology, however, the most widespread criterion for defining the Neolithic is farming. Recent archaeobotanical research has begun to address a gap in knowledge about the earliest farming in the northern Black Sea regio. In this talk, I will trace the appearance of Neolithic crops (wheat, barley, peas, etc.) in the northern Black Sea region, both through directly dated archaeobotanical remains and impressions on ceramics. The intention is to synthesise available archaeobotanical and radiocarbon data from recent research in the region and to visualise it using geospatial analyses and distribution maps. I use this approach to shed light on longstanding questions in the northern Black Sea region, surrounding the meaning of the terms ‘Mesolithic’, ‘Neolithic’, ‘Chalcolithic’ and the transitions between them.

165. THE COMPLEX OF LAYERS 5/6 OF FATMA KOB

**Contribution format:** Oral  
**Contribution authors:** Manko Valery – Telizhenko Sergiy (Institute of Archaeology of NAS of Ukraine)

The complex of layers 5/6 of Fatma Koba was connected with the first half of Boreal. The complex illustrates the last stage of development of Taubodrakian industry of mountainous Crimea. This stone tool industry is comprised of the following assemblage: the use of direct percussion techniques for obtaining blades; the presence of single and double-platformed flat cores and single-platformed, narrow-surfaced cores, end scrapers, burins on truncated, facett ed blades, angle burins on broken blades. This locales assemblage as included the production of lunates with bipolar retouched arcs, and trapezes and triangles with bipolar retouched sides, as well as the use of the microburin technique for the production of geometric microliths. The origin of the Taubodrakian industry

is associated with the Epipaleolithic of southwestern Turkey. The Karain B Culture of Antalya revealed by the early appearance of lunates and other microliths with bipolar retouching at the turn of Dryas III and Bølling Interstadial. The analogy of the Taubodrakian complexes is the Direkli Cave complex in southwestern Turkey. During the Allerød, the technology of making geometric microliths with bipolar retouching spread to the eastern Mediterranean, Aegean and Black Sea coastal areas. The appearance of lunates with bipolar retouching is also observed in the Late Epigravettian complexes of the Southern Caucasus. Extensive cultural unity is created, the existence of which is supported by migratory flows throughout the Final Pleistocene and Early Holocene. The creation of this system was the prediction of the Neolithization process. The Fatma Koba Complex layers 5/6 contain impurities associated with the Crimean Sviderian, Shpankobian, and Kukrek Cultures. The question of the connection of the Taubodrakian industry with the Neolithization of southern Eastern Europe is considered. The role of the Taubodrakian in the synthesis of the Neolithic Tashairian Culture is discussed.

256. TRAPEZ MICROLITHS AS CULTURAL CONTACT INDICATORS THE TASH AIR STONE TOOL INDUSTRY

**Contribution format:** Oral  
**Contribution authors:** Serhii Telizhenko – Valery Manko (Institute of Archaeology NAS of Ukraine)

The transition to the ceramic Neolithic in some regions of Asia Minor, the Caucasus, and Southern Eastern Europe is associated with the appearance of new forms of geometric microliths. One of these forms were the trapez type with a flat dorsal scar or parallel retouch. This type of microlith appears in the territory of the northern Levant and southern Asia Minor in the last quarter of the 7th millennium BC. For several hundred years, microliths of this type spread over the vast territory of the Levant, Asia Minor, the Caucasus, and southern Eastern Europe. Such rapid spread of innovative technology is associated with both the large-scale processes of population migration, and the movement of small population groups (diffusion). The process of the assimilation of this innovative technology in this or other regions could be associated with the emergence of new technology carriers or with the replication or imitation of the latest technology by the local autochthonous population. The most interesting aspect we observe in the materiality of the Tash Air Cultural sites of Tash Air I, Kaia Arasy, Fatma Koba (Crimea), lies in the typology of geometric microliths from these sites which contain all five types of trapezes with flat dorsal retouch. This circumstance allows us to infer that the formation of the Tash Air culture was influenced by cultural contacts with the populations of several regions, including those of Asia Minor and the Caucasus. The appearance of some types of trapezoidal microliths could be the result of the penetration of small population groups from these regions. As a result of the formation of cultural ties between the population of Crimea and the population of distant regions, many innovations occurred in the Neolithic way of life.

976. FAUNA FROM THE PREHAMANGIA AND HAMANGIA SETTLEMENTS (6TH-5TH MILLENNIA BCE, ROMANIA); CIRCUMSTANTIAL EVIDENCE OF THE BLACK SEA LEVEL FLUCTUATION

**Contribution format:** Oral  
**Contribution authors:** Valentin Radu (‘ Vasile Pârvan` Institute of Archaeology, Romanian Academy | Research Institute of the University of Bucharest, University of Bucharest) – Valentina Voinea (National History and Archaeology Museum, Constanța) – Ana García-Vázquez (Research Institute of the University of Bucharest, University of Bucharest) – Adrian Bălășescu (‘ Vasile Pârvan` Institute of Archaeology, Romanian Academy)

Archaeological researches realized in several Prehamangia and Hamangia sites (5700 – 4650 BCE), located in Dobrogea region (western Black Sea) such as Palazu, Cheia, Techirghiol, Constanța, has revealed a rich fauna represented mainly by domestic mammals. The pastoral way of life of these communities, as recorded by faunal assemblages, persisted until the middle of the 5th millennium BC. During this time span, the Black Sea level was rising due to marine transgression and costal line is constantly evolving. In addition, starting in the middle of the 5th millennium BCE, this region was also affected by major climatic changes (drought) which represented a new challenge for the Eneolithic communities to preserve their agro-pastoral way of life in the region. The presence of the Prehamangia communities, the first Neolithic culture in Dobrogea, as well as later, of the Eneolithic Hamangia in this area between the Danube and the Black Sea, is still a subject discussed by specialists. One of the hypotheses proposed for the colonization of this region is the coastal one. This presentation explore the evolution on animal paleoeconomy during this period affected by major costal transformations. The ecological requirements of certain animals can constitute good ecological indicators. Wild mammals such as wild horses and hemions, seals and various species of dolphins as well as a number of aquatic resources will be the key taxa in our approach. The assemblages also benefited from 14C analyses so that we can also establish a chronology of this evolution. Although considered circumstantial evidence, the results obtained were used to establish scenarios related to the evolution of the coastline in the western Black Sea during this period. This work was supported by a grant of the Romanian Ministry of Education and Research, CNCS - UEFISCDI, project number PN-IV-P1-PCE-2023-1547 (ExLiDo)



318. THE EMERGENCE OF THE NEOLITHIC IN DOBRUJA (ROMANIA) REFLECTED BY THE OSSEOUS INDUSTRY

**Contribution format:** Oral  
**Contribution authors:** Monica Margarit (“Valahia” University of Targoviste) – Adrian Irimia (Museum of National History and Archaeology Constanta | “Valahia” University of Targoviste) – Valentina Voinea (Museum of National History and Archaeology Constanta) – Valentin Radu (National Museum of Romanian History, Bucharest) – Adrian Balasescu (“Vasile Pârvan” Institute of Archaeology, Romanian Academy)

If on the territory of Romania, the oldest Neolithic assemblages appear around 6200 BC, the Dobruja seems to have known the evolution of the Neolithic later and the causes of these archaeological evidences represent a subject long debated by specialists and still unresolved. At the current stage of knowledge, the oldest archaeological finds belong to the Hamangia culture (c. 5000-4450 cal BC) with some recent discoveries (the Prehamangia culture) which seem to push the oldest settlements beyond 5700-5400 cal BC. The archaeozoological study confirmed the pastoral character of the economy, indicated by the high percentage of domestic animals (91%), especially cattle and caprines. The osseous industry reflects the economy type of these communities what is clearly oriented towards the exploitation of Ovis aries/Capra hircus and Bos taurus bones. Technologically processed bones were recovered from household waste, after the slaughter and consumption of these animals. Antler or tooth working is sporadically attested in sites. Unio sp. shells were used as tools in domestic activities, the same as the tortoise carapace. There are also pieces from exotic raw materials (Spondylus, Glycymeris) that illustrate the existence of intercommunity exchange networks. The functional data correlate with the specific economy of these communities: the artefacts are used in domestic activities for the processing of ceramics, vegetable fibres or wood. Acknowledgments This work was supported by a grant of the Romanian Ministry of Education and Research, CNCS - UEFISCDI, project number PN-IV-P1-PCE-2023-1547 (ExLiDo).

1447. MOBILITY AND DIETARY PRACTICES IN THE KGK VI COMMUNITY OF SULTANA-MALU ROȘU (5TH MILLENNIUM BC, ROMANIA)

**Contribution format:** Oral  
**Contribution authors:** Aurélien Tafani – Petra Coman – Ana Garcia-Vazquez (ICUB, University of Bucharest) – Robert Tykot (University of South Florida) – Christophe Snoeck (Archaeology, Environmental Changes & Geo-Chemistry, Vrije Universiteit Brussel) – Enrico Greco (ICUB, University of Bucharest) – Andreea Toma (School of History, Philosophy and Digital Humanities, University of Sheffield) – Mihaela Golea – Adrian Bălășescu (“Vasile Pârvan” Institute of Archaeology, Romanian Academy) – Cătălin Lazăr (ICUB, University of Bucharest)

This study seeks to explore the potential role of individual mobility and marital alliances as a driving force behind the emergence of the Kodjadermen-Gumelnița-Karonovo VI (KGK VI) material culture in the eastern Balkans during the 5th millennium BC. We performed oxygen and strontium isotopic analyses on the tooth enamel of the human remains found in the Eneolithic graves excavated at the Sultana-Malu Roșu necropolis (Romania) and interpreted the results through to the establishment of a regional bioavailable strontium baseline based on modern plants strontium isotopic values. To obtain reliable sex estimations, proteomic analysis of amelogenin of human tooth enamel were also performed on individuals whose remains were the least preserved. This study also incorporates the dietary profiles of the buried individuals using stable isotope analysis ( $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$ ) of bone collagen. By comparing human isotopic values with those of faunal remains (both domestic and wild) and archaeobotanical samples from the tell and necropolis, we reconstruct subsistence strategies and dietary variations within the community. By integrating bioarchaeological and funerary data, this research provides new insights into dietary practices, resource management, and social organization in KGK VI communities, contributing to a broader understanding of life and death in prehistoric Southeastern Europe.

1590. PALEODEMOGRAPHIC POPULATION ESTIMATES FOR THE CUCUTENI-TRYPILLIA SOCIETIES

**Contribution format:** Oral  
**Contribution authors:** Ralph Großmann (Kiel University)

The size and density of prehistoric populations are considered important indicators of population conditions. While many relative results on population dynamics are available, absolute population sizes are still under-represented in research. The aim of this project is to conduct a diachronic multi-proxy estimation of absolute population size based on two approaches: the geostatic (Cologne Protocol) and the Bayesian approach. Both approaches will be combined, with the geostatic approach preceding the Bayesian approach. The analyses are carried out in selected regions of Europe. The author presents first estimates on palaeodemographic developments

for the Cucuteni-Trypillia societies located between the Carpathians in the west and the Dnieper in the east. These Chalcolithic societies developed from c. 4800 BC onwards and are characterised by systematically planned villages, a distinct agricultural economy, the use of copper and elaborate material culture. Significant are the mega-sites with a base area of more than 100 hectares, established around 3950 BC.

394. COMPARISON OF ELEMENTAL AND STABLE ISOTOPE ANALYSES FOR STUDYING DIET AT THE CHALCOLITHIC SITE OF GUMELNIȚA (ROMANIA)

**Contribution format:** Poster  
**Contribution authors:** Robert Tykot (Department of Anthropology, University of South Florida) – Ana García-Vázquez – Cătălin Lazăr (ArchaeoSciences, Research Institute of the University of Bucharest)

Elemental analysis of human and faunal remains is used to address dietary patterns during the Chalcolithic period at the site of Gumelnița in Romania. Calcium, strontium, and barium are the main components of the mineral portion of bone, and vary based on trophic level. This method can precede isotope-based interpretations, and be of significant use in cases where bone collagen is not preserved. This study specifically assesses the potential utility of non-destructive XRF analyses by comparing the elemental results with stable isotope data for this site. The precision of the pXRF on most elements of interest is excellent, and calibrations for calcium-based materials (e.g. bone mineral, tooth enamel, marble) have been established, allowing comparisons with analyses done by ICP spectrometry. Elemental analysis, however, has concerns due to potential degradation and contamination of the mineral portion of bone. Also, most previous elemental studies also have been destructive, with samples well-cleaned, ashed, and put into solution for analysis. Over the last two decades, however, non-destructive desk-top and portable (hand-held) X-ray fluorescence (XRF) spectrometers have become widely available to archaeologists. While now regularly used for trace element analysis of obsidian and other lithics, and major element composition of metals, it appears potentially useful for studies of skeletal remains as well. One of the first studies done was on individuals from inland and coastal sites in Florida. The small amounts of variability among individuals at each site suggest little surface contamination, while the clear differences between the sites are most likely due to varying proportions of seafood in the diet. Analyses of many individuals from Gumelnița were compared with published isotopic data (García-Vázquez et al. 2023, Scientific Reports 13:8499, <https://doi.org/10.1038/s41598-023-35129-0>) and the interpretations made about the dietary importance of plant and aquatic resources with any patterns based on sex and status.

1821. REEVALUATING THE SECOND NEOLITHISATION OF THE BALKANS: INSIGHTS INTO EARLY (E) NEOLITHIC IN ROMANIA

**Contribution format:** Poster  
**Contribution authors:** Catalin Alexandru Lazar – Gabriel Popescu – Ana García-Vázquez – Alfred Vespremeanu-Stroe – Cristina Covataru (University of Bucharest)

This study revisits the Neolithisation of the Balkans by focusing on the early (e)Neolithic communities in Romania, particularly the Boian and Gumelnița archaeological sequences. Recent aDNA evidence suggests that these communities originated from a secondary migration of Anatolian farmers, arriving between 5318 and 5301 cal BC on the Mostiștea Valley (Romania). Radiocarbon data from key sites, such as the cemeteries at Curățеști, Sultana-Valea Orbului, and Sultana-Malu Roșu, reveal a gradual northward movement of settlers who established flat settlements and burial sites within the Mostiștea Valley. During the initial exploratory phase (5318-4941 cal BC), settlers focused on establishing early communities, which later evolved into tell settlements marked by inter-regional trade, technological advancements, and the adoption of materials like copper and gold. However, this period does not represent the first evidence of Neolithic populations in the area. Earlier farming groups with distinct, non-local genetic markers appeared as early as 800-700 years prior, though the Anatolian socio-economic tell system did not emerge until the late 6th millennium BC. Previous ceramic studies reveal a shift in mobility patterns over time. The early Starčevo-Criș groups were highly mobile, whereas the later Chalcolithic Gumelnița communities demonstrated increased sedentism. This evolution reflects significant socio-economic shifts, including greater craft standardisation and the development of more stable resource acquisition networks. Contrary to traditional assumptions, Neolithic material culture did not signify the immediate transfer of Anatolian farming models. Instead, their integration into local societies occurred gradually, with a delayed adoption that spanned several centuries. These findings suggest a more intricate, multi-phase Neolithisation process influenced by waves of migration, environmental changes, and adaptive socio-economic strategies, challenging previous linear cultural-historical interpretations.



217 MERC FORUM. BEYOND BOUNDARIES: INTERDISCIPLINARY PERSPECTIVES ON THE FUTURE OF MEDIEVAL ARCHAEOLOGY

Session theme: 3. Exploring methods in research, education and communication  
Session format: Other  
Session keywords: Medieval archaeology, Historical archaeology, Interdisciplinary studies, Research chal-  
lenges, Archaeological theory  
Session organisers: Jakub Sawicki (Institute of Archaeology of the Czech Academy of Sciences) – Carenza  
Lewis (University of Lincoln) – Pam Crabtree (New York University) – Eugene Costello  
(University College Cork | Stockholm University) – Andreia Rodrigues (University of  
Évora)

SESSION ABSTRACT

Medieval archaeology is generally perceived as a discipline which aims to study of human life, culture, and soci-  
ety during the Middle Ages (roughly 5th to 16th centuries) through material remains. It seeks to uncover and  
interpret artefacts, structures, settlements, and landscapes from this period, contributing to our understanding  
of medieval history and culture, often in ways that historical texts alone cannot.  
While broadly accurate, this definition oversimplifies the complexity and nuances of the field. Practitioners know  
that medieval archaeology’s scope and methodologies are subject to ongoing debate, with varying perspectives  
across countries. It also fails to address the discipline’s quite late emergence as a distinct area of inquiry or its  
still contested status within broader academic discourse.  
Until now, discussions on what defines medieval archaeology have largely been confined to its own scholars. This  
forum will take a different approach—inviting historians, art historians, architectural experts, numismatists,  
physical anthropologists, and palaeo-environmental scientists to explore the specificities of the field with us. We  
begin by asking what medieval archaeology shares with these disciplines and, potentially, where they intersect.  
Secondly, we ask what archaeological studies can offer that others do not and, equally, what archaeology can  
learn from these other disciplines. The goal is to address the challenges faced by medieval archaeology, includ-  
ing the influence of the Global Middle Ages concept and the so-called “tyranny” of written sources dominating  
traditional research scopes. In the process, we hope to foster new, more inclusive narratives that integrate both  
the (long) medieval and the archaeology.

220 PREVENTIVE ARCHAEOLOGY IN EUROPE: CONTEXT OF EXERCICE, METHODS AND WORKING CONDITIONS, PART 2

Session theme: 4. De nobis fabula narratur: archaeological practice and a profession in flux  
Session format: Regular session  
Session keywords: Preventive archaeology, Working condition, Development led archaeology, Europe  
Session organisers: Amala Marx (Institut national de recherches archéologiques préventives) – Harald  
Stäuble (Archaeological Heritage Office of Saxony) – Kai Salas Rossenbach (Institut  
national de recherches archéologiques préventives)

SESSION ABSTRACT

Preventive archaeology or development led archaeology is now practiced throughout Europe in a variety of  
legal, institutional and field contexts. Although it produces most of the archaeological data in part of Europe,  
there is still a lack of discussion about the methods and working conditions. Under monetary and time pressure,  
preventive archaeology has developed and is still developing, methods to study archaeological sites in a short  
time while maintaining or even improving the scientific quality of the excavation and post-excavation studies.  
In some countries, the excavation methods used by preventive archaeology are state-ofthe- art and the skills of  
its experienced archaeologists are in demand. However, it is also a field, halfway between business and science,  
where workers are subject to not only the law of the market, but also to competition and the vicissitudes of finan-  
cial crises. Through presentations from different European contexts, this session aims to discuss the context of  
practice, methods and working conditions of the profession in Europe.

CONTRIBUTION ABSTRACTS

1382. 30 YEARS OF ARCHAEOLOGICAL LARGE SCALE PROJECTS IN SAXONY, GERMANY: PREVENTIVE ARCHAEOLOGY BETWEEN CLAIM AND COMPROMISE

Contribution format: Oral  
Contribution authors: Harald Staeuble (Archaeological Heritage Office, Saxony, Germany)

After the fall of the inner-German Wall in the late 80ies of the last century, there was a break in the way large-  
scale interventions were dealt with in terms of archaeological monument protection. This is recognisable above  
all, but by no means only, in the area of open-cast lignite mines. A new approach was necessary, accompanied  
by a comparatively higher demand for land, be it with the numerous new linear projects for a wide variety of  
product lines, new streets, new industrial estates around the major cities and, last but not least, the many new  
development plan areas for housing estates. The legal basis was redefined at the beginning of the 1990s with a  
new monument protection law, in which the polluter-pays principle for major projects was explicitly anchored  
and always interpreted favourably, so that word quickly got around that archaeologists were not obstacles to  
construction, but reliable partners with regard to time and financial specifications, the most important aspects  
for investors. A great deal could and had to be developed on a methodological level in order to work more effec-  
tively and still fulfil appropriate documentation standards. Of course, you always have to compromise when it  
comes to finding the right balance between maximum requirements and feasibility, but always acting in favour  
of scientific research.

744. UNEQUAL MARKET POSITION IN DEVELOPMENT-LED ARCHAEOLOGY AND THE PRESSURE TO REDUCE RESEARCH QUALITY IN THE CZECH REPUBLIC

Contribution format: Oral  
Contribution authors: Robert Antal (Institute of Archaeology of the Czech Academy of Sciences, Brno)

Nowadays, development-led archaeology accounts for almost 100% of all archaeological excavations in the Czech  
Republic. The obligation of developers to finance this type of research creates market competition among archae-  
ological organizations. Unfortunately, this competition is focused almost exclusively on excavation costs, which,  
combined with the unequal position of different organizations, creates pressure to reduce quality of research.  
As archaeological heritage protection is regulated by outdated legislation, some practical aspects are not suffi-  
ciently addressed. First, this contribution will briefly recall the basics of archaeological heritage care in the  
Czech Republic, with a particular focus on the administrative process and relevant legislation, as presented at  
the previous conference. Second, it will introduce the main types of archaeological organizations—museums,  
universities, private companies, and other institutions—and describe their sources of financing. The financial  
aspect is crucial, as different organizations have access to varying levels of resources, which directly influences  
their ability to conduct high-quality archaeological research. Third, the paper will examine the impact of key  
factors, such as the market-driven environment and financial pressures, on excavation costs and, consequently,  
on research quality. The competition between organizations primarily prioritizes affordability and speed over  
thorough scientific investigation, which may lead to insufficient protection of archaeological heritage. Finally,  
the impact of all these aspects on rescue archaeology in the Czech Republic will be evaluated. Potential risks  
to heritage preservation will be identified, and possible improvements to the current system will be proposed.

72. IN PURGATORY BETWEEN HEAVEN AND HELL: PARADOXES OF ARCHAEOLOGICAL HERITAGE MANAGEMENT IN HUNGARY

Contribution format: Oral  
Contribution authors: Gábor Virágos (Independent)

Hungary presents a unique case study in development-led archaeology, characterized by frequent systemic changes  
over the past twenty-five years. This period has witnessed alternating shifts between public and private frame-  
works, alongside oscillations between centralized and localized management approaches. The system undergoes  
significant reorganization approximately every 3-4 years, creating instability for stakeholders and affecting work-  
ing conditions for archaeological professionals. Despite legal provisions earmarking funds for archaeological  
purposes, a consistent pattern of covert fund diversion persists. This creates a paradoxical situation: while devel-  
opment-led archaeology appears to generate substantial resources capable of supporting scientific research, both  
institutions and individual professionals often struggle financially. This dichotomy of apparent abundance versus  
practical scarcity defines the field’s operational reality. Hungary’s comprehensive archaeological preservation  
requirements - mandating the collection of all artifacts and documentation of all features - make it an excellent  
case study for examining the extremes of preventive archaeology’s possibilities and limitations. This presentation  
analyses past developments, current challenges, and future prospects, with particular emphasis on professional  
career trajectories and well-being, while addressing increasingly concerning near-term outlook for the field.



384. IMMOVABLE CULTURAL PROPERTY PROTECTION STUDIES, STEPS TOWARDS PREVENTIVE ARCHAEOLOGY IN SERBIA THE CASE OF THE NOVI SAD-HUNGARIAN BORDER OIL PIPELINE

**Contribution format:** Oral  
**Contribution authors:** Neda Mirkovic-Maric (Intermunicipal Institute for the Heritage Protection Subotica) – Gordan. Topic (Provincial Institute for the Heritage Protection Petrovaradin) – DušankaVeselinov (Institute for the Heritage Protection of the City of Novi Sad)

Although with the signing of the Law on Confirmation of the European Convention on the Protection of Archaeological Heritage (revised) (“Official Gazette of RS”, No. 42 of June 2, 2009) the Republic of Serbia ratified the European Convention on Protection of Archaeological Heritage, it is still poorly administered. Articles 5 and 6 of the Conventions, which deal with the participation of archaeologists in the planning phase of construction projects, were earlier not equally applied on the entire territory of the Republic of Serbia. Positive changes can be seen through the preparation of “ICM (immovable cultural property) protection studies”, which were introduced in 2023 by the Amendments to the Law on Spatial Planning and Construction. During 2024, for the purposes of drafting the Special purpose spatial plan, and before the construction of the Novi Sad-Hungarian border oil pipe-line, a protection study was carried out, covering an area 90 by1 km. Geographically, it is the area of central and northern Vojvodina, which includes the southern parts of the Pannonian Plains, a lowland area intersected by numerous active and former watercourses, a fertile land where life has always been vibrant. For the purposes of the study, an intensive survey of the scope of the plan was carried out, as well as geophysical surveys on several dozen hectares. Within the scope of the Spatial plan, numerous archaeological sites from different periods have been detected, some of which are located on the planned route of the oil pipeline. The results of this research are presented here as an example of good practice but also to shed light on the depth of the problem and the need for reform of the heritage protection system in Serbia.

718. DEVELOPING AND TRANSMITTING PROFESSIONAL SKILLS SPECIFIC TO PREVENTIVE ARCHAEOLOGY: THE CASE OF SWITZERLAND

**Contribution format:** Oral  
**Contribution authors:** Paul Jobin (Office de l’archéologie cantonale de Neuchâtel)

Integrated into the economic sector of construction and territorial planning, the practice of preventive archaeology requires varied scientific, technical and administrative skills that are rapidly evolving. In Switzerland, after the economic crisis of 2008 and the gradual end of federal motorway construction projects, young archaeologists used to develop these skills on temporary contracts as field technicians before finding a permanent position in one of the cantonal archaeological services or leaving the profession. Since a few years, a notable increase in preventive archaeology activities has occurred in Western Switzerland, mainly due to the expansion and densification of the country’s urban centres. In this context, many young archaeologists are now hired to work on archaeological excavations directly after completing their academic studies and without having previously developed any administrative or technical skills related to heritage conservation. As we will see, this situation allows us to define the skills specific to preventive archaeology that cannot be acquired through academic study. We will also analyse the importance of these skills for an effective application of preventive archaeology in land-use planning practices and for defending ours interests during our negotiations with the other various stakeholders involved. Finally, some proposals will be formulated to improve the recognition, development and transmission of the various and exacting professional skills specific to preventive archaeology.

2193. CAMPO DRAGONE (SCONTRONE, L’AQUILA, ABRUZZO, ITALY): PUBLIC-PRIVATE INTERPLAY FOR PREVENTIVE ARCHAEOLOGY IN A QUARRY AREA

**Contribution format:** Oral  
**Contribution authors:** Alessandro Vanzetti (University of Rome “La Sapienza”) – Francesca Del Fattore – Alberta Martellone (Soprintendenza ABAP AQ-TE, Italy) – Wieke De Neef (Bamberg University) – Erika Iacobucci – Maria Perri (Independent Researcher) – Sara Marino (University of Rome “La Sapienza”)

Albeit politics is still trying (2025) to reduce the effectiveness of State archaeological protection Officers, preventive archaeology in Italy is still directly regulated by the Public Contracts Code since 2016 (now: Legislative Decree 36/2023) and therefore it is a compulsory step within the management and organization of public works and utilities and in any work legally subject to the environmental impact assessment, such as, for instance, modern quarries. The aim of this paper is to present the case of the archaeological research at the Pre-Roman and Roman site of Campo Dragone (Abruzzo, Central Italy). In the 1980s/90s, this context was severely damaged by a modern quarry. The archaeological contexts include a burial area dating to the 7th-6th century BCE (Pre-roman early Samnite phase) and a gravel road running north-south, flanked by tombs dating to the 2nd century CE (Roman Antonine period). A historical ‘tratturo’ (transhumance route) is also recorded in this location. In 2017, in the

frame of the new regulations enforcing preventive archaeology, an emergency excavation targeted a part of the context. In 2022, the quarry was planned to expand over the last preserved portion of the archaeological context. A collaboration agreement was therefore signed between the Superintendency of L’Aquila and Teramo, Sapienza University of Rome and the local Municipality (Scontrone village) to support synergically the preventive evaluation, excavation, research and the ensuing enhancement activities. The intervention also included the presence of professional archaeologists and the relationship with the private quarry companies, who directly financed a relevant part of the activities, together with the State. The process was rather linear, but it also shows some of the complexities preventive archaeology faces today, in the interplay between State institutions, local Territorial bodies and Universities, Private stakeholders and professional archaeologists. The clear-cut cooperation is a viable strategy, but not without caveats.

2002. THE ROLE OF ENVIRONMENTAL IMPACT ASSESSMENT IN SAFEGUARDING ARCHAEOLOGICAL HERITAGE

**Contribution format:** Poster  
**Contribution authors:** João Marques (Património Cultural, Instituto Público | CEAACP - Centro de Estudos em Arqueologia, Artes e Ciências do Património) – Alexandra Estorninho – Ana Nunes – José Monteiro (Património Cultural, Instituto Público)

The ratification in 1997 by Portugal of the European Convention for the Protection of the Archaeological Heritage (revised) – 1992, La Valetta, Malta –, institutionalized the widespread application of the principles of preventive archaeology, resulting in an extraordinary increase in archaeological activity under contract. The 2001 law on the protection and enhancement of cultural heritage established that any necessary archaeological interventions must be fully financed by the respective promoters. The growing presence of archaeology in areas as diverse as environmental management policies, land use planning and urban rehabilitation, created the need to adopt a new set of standards and guidelines that would guarantee compliance with procedures and technical methodological precepts to be observed when carrying out archaeological work. The Environmental Impact Assessment (EIA) of public and private projects likely to produce significant effects on the environment constitutes a fundamental preventive instrument of sustainable development policy. Within its framework, the national entity responsible for cultural heritage, including archaeological heritage, established a set of guidelines and methodological work procedures to be carried out within the scope of EIA. Both regulations resulted in the mandatory collection of information to describe the affected environment, in order to identify, predict and prioritize impacts, as well as defining measures designed to avoid, minimize or compensate for impacts and respective monitoring of implementation in subsequent phases of projects (post-assessment). In the current Regulation of Archaeological Work, these activities correspond to minimization actions, integrated into studies, plans, projects and works with an impact on the territory.

2055. BUILDING BRIDGES: COLLABORATIVE APPROACHES IN PREVENTIVE ARCHAEOLOGY AND ACADEMIC RESEARCH

**Contribution format:** Poster  
**Contribution authors:** Cristina Gameiro (Uniarq - Centro de Arqueologia da Universidade de Lisboa) – Nuno Neto (Neoépica, Lda) – Luís Almeida (Uniarq - Centro de Arqueologia da Universidade de Lisboa | Direção Geral de Energia e Geologia, Ministério do Ambiente) – Maurizio Zambaldi (Uniarq - Centro de Arqueologia da Universidade de Lisboa | LaBAAF - University of Trento)

This paper addresses the evolving relationship between preventive archaeology and academic research in Portugal, emphasizing the potential for improved outcomes through collaboration between archaeological companies and universities. As a case study, it presents the collaboration between the PALEORESCUE project and Neoépica, Lda during the excavation of the early Mesolithic sector at Unidade de Execução de Entrecampos (UEE), in Lisbon. The joint effort enabled the implementation of methodologies, such as geoarchaeological and sedimentological analyses, radiocarbon dating, and micromorphological studies. These approaches, not often applied in preventive archaeology, allowed for more detailed insights into the early Mesolithic occupation of the site. Notably, over 11,000 lithic artifacts were documented and analyzed, offering a comprehensive understanding of raw material use, spatial distribution, and site formation processes. While collaboration between the private and academic sectors is common, it is often limited to post-excavation artifact studies. The UEE excavation represents a departure from this norm, as research and preventive archaeology were fully integrated during the excavation process. The project underscores the importance of collaborative frameworks that combine the technical rigor of preventive archaeology with the knowledge and critical mass of academy. Such synergies can enhance knowledge production and promote a more comprehensive preservation of cultural heritage. Ultimately, this study calls for stronger institutional support and standardized protocols to ensure more frequent application of interdisciplinary methodologies in preventive archaeology, advancing both discipline and public knowledge.



221 DECONSTRUCTING NATURE: ARCHAEOLOGY OF “NATURAL SPACES” AND THE “MODERN VISUAL REGIME” IN RURAL AREAS

Session theme: 2. Intertwined Epistemologies: Transcending the Data – Theory Divide  
Session format: Regular session  
Session keywords: Archaeology of Landscape, Political Aesthetics, Materiality, Rural History, Contemporary Archaeology  
Session organisers: Rafael Millán-Pascual – Andrés Menéndez-Blanco (Institute of Heritage Sciences (INCIPIT-CSIC)) – Laura Gago-Chorén (Università di Genova)

SESSION ABSTRACT

In “The Country and the City” Raymond Williams shows the abrupt process that the rural environment went through to adapt to the taste of the bourgeois look. The key was to eliminate the traces of peasant labor accumulated in rural landscapes throughout history. The countryside became a natural setting: an image without people. A similar reading is offered by Jacques Rancière in “The Time of the Landscape”. This book points to landscape art as one of the technical mechanisms that contributed to the culmination of the aesthetic regime of modernity. By this means, nature was detached from history at the cost of being dominated and technically reproduced, as if it were a painting. The rural environment became the stage on which to rehearse the visual regime of modernity. This session aims to deconstruct this idea of nature. The critique of the modern dichotomy between nature and culture occupies a long bibliography, as well as numerous approaches. Ours is different. We start from a material understanding of the modern idea of nature. That is, this idea is not false, as the critique sometimes suggests, because it also has material effects that support it and give it meaning. The idea of nature is constructed, it creates reality, just as it allows itself to be deconstructed. We invite to think archeologically about the human and material costs behind the image of “natural space”. From this perspective, the “clearances”, the effects of forestry policy, infrastructure policies, the creation of natural parks and in general the management of archaeological heritage are mechanisms closely linked to the imposition of this modern visual and aesthetic regime. The aim is to open alternative historical narratives that break with the idea of a “natural” rural environment occupied by the “good savages” of the past and present, i.e. without people.

CONTRIBUTION ABSTRACTS

470. ARCHAEOLOGY, ENVIRONMENTAL HISTORY AND POLITICAL ECOLOGY: KEY CONCEPTS AND METHODOLOGICAL CONFLUENCES FOR DECONSTRUCTING THE NATURALIZATION OF RURAL AREAS

Contribution format: Oral  
Contribution authors: Rafael Millán-Pascual (Institute of Heritage Sciences (INCIPIT-CSIC))

Nature is no longer the passive and aesthetic concept portrayed by bourgeois sensibility and its tourist counterpart. Climate change and the so-called Anthropocene have brought the political dimension of nature back to the forefront. In recent decades, new concepts and methods have challenged the old division between culture and nature to address the complexity of the problem, but in many cases the material aspects are not taken into account. In this talk, I will present an integrated approach that brings together archaeology, environmental history and political ecology to address this material dimension. Rural areas offer a unique perspective from which to explore the limits and possibilities of this interdisciplinary encounter. From clearances to major government interventions, the countryside suffers the material consequences of an ideal and abstract notion of nature that has transformed rural areas into its visual realization. A comprehensive approach to the historical development of this naturalization process must take into account these disciplines in order to restore a more nuanced and equitable way of life in the countryside. In other words, breaking down rural postcards to promote a more social and historical sensibility.

1288. SWEET STORIES, AGGRESSIVE FACTS. THE RESHAPING OF A RURAL COMMUNITY IN NORTH-WESTERN IBERIA BETWEEN THE 19TH AND 20TH CENTURIES

Contribution format: Oral  
Contribution authors: Andrés Menéndez-Blanco (Institute of Heritage Sciences (INCIPIT-CSIC))

The 19th century saw the triumph of the new ideas of modernity and their progressive institutionalisation in European states. With this, a series of bourgeois discourses and perceptions of the rural world or ‘nature’ became widespread. But, of course, the changes went far beyond innocent notions of idyllic landscapes and the ‘good

savages’ who inhabited them. These narratives accompanied (and ‘sweetened’) deeper acts of economic and social transformation. Such processes can be read in the landscape through archaeology, avoiding the limitations of self-interested narratives. In this paper we illustrate this by analysing a mountainous area in Asturias (NW Iberia). We will see how, throughout the 19th century, a symbolic representation of the ideals of the 19th-century bourgeoisie was imposed on the landscape through new monumental architecture. An old village was almost completely destroyed and rebuilt according to a purely urban plan. At the same time, we can see how its promoters gradually appropriated the natural resources and transformed the productive infrastructure in their favour. These changes weakened the local communities, which began a rapid process of destructuring. The aim of this paper is to analyse the effects of these transformations at a small scale and to question the dominant idealising discourses. Ultimately, the aim is to better understand the processes of depopulation of rural mountain areas that are currently affecting south-western Europe.

1758. MODERNITY AND EXTRACTIVISM IN THE INDUSTRIAL LANDSCAPE OF BERGUEDÀ (CATALONIA, SPAIN)

Contribution format: Oral  
Contribution authors: Laia Gallego Vila (Universitat Autònoma de Barcelona)

The industrialisation left an indelible environmental mark on Berguedà, transforming its natural landscape through an extractivist relationship with its resources. The surge in industrial activities, epitomized by the establishment of mining operations and new infrastructure, significantly altered the region’s ecology. The development of animal-drawn trams, overhead cable carts, and the pivotal railway connection to Manresa and Barcelona in 1903 accelerated environmental changes and redefined the region’s spatial dynamics. These infrastructural changes, driven by the energy demands of Barcelona’s factories, reconfigured Berguedà from an isolated rural region into a crucial energy periphery. The environmental impact was profound: deforestation accelerated as trees were felled for mine shoring, and new industrial colonies emerged, significantly altering the valley terrain. The transformation of company towns, such as La Consolació, Sant Josep, and Sant Corneli, resulted in concentrated worker populations, further stressing the local environment. The mining activities in Peguera, Fígols, serve as a stark example of the environmental consequences of extractivism. Rapid deforestation and the exhaustion of coal resources within three decades led to the village’s abandonment by 1960. This episode highlights the autophagic and cannibalistic nature of mining exploitation, with significant environmental degradation and depletion of natural resources. By the 1950s, industrialisation had further entrenched extractivist practices, leading to severe pollution in the Llobregat valley. Successive industries, including cement factories and thermal power plants, exacerbated environmental damage until their eventual closure in the 1980s. The remnants of this industrial era—abandoned factory buildings, industrial waste, and contaminated landscapes—underscore the long-lasting environmental impacts of Berguedà’s industrial past.

1544. THE ASTURIAN RURAL LANDSCAPE: FROM TRADITIONAL FARMING TO AGROINDUSTRY

Contribution format: Oral  
Contribution authors: Santiago Rodríguez-Pérez (University of Oviedo)

The landscape and traditional rural culture of Asturias were shaped over a long historical process, which involved a gradual conversion of the environment into an agricultural ecosystem. The exploitation of this ecosystem was carried out by the basic units of production and consumption, the casería (farmsteads), which formed the basis of rural settlement since the Middle Ages. The house represented the vital and productive space of the peasant family, including domestic spaces, buildings dedicated to agricultural production, lands for pastures, crops, and forests, as well as rights over common lands and neighborhood. At the end of the 19th century, economists, engineers, and other intellectuals promoted the dairy specialization of northern Spain. Policies were developed in favor of milk and meat cattle production, to the detriment of the traditional polyculture practiced on farms. During the 20th century, the processes of agricultural industrialization accelerated, transforming the old rural social structures and the ways of understanding and exploiting the landscape. This led to profound transformations, such as the conversion of old traditional farms into modern industrialized operations; the intensification and hyperspecialization of forage crops; the creation of intensive forest monocultures dedicated to the timber industry; and finally, the social disintegration of the peasantry and rural inhabitants, driven to urban migration. This process of industrialization has had a strong impact on the landscape and has generated other consequences, such as depopulation, dependence on external and international markets, loss of biodiversity and soil degradation, urban speculation, and new landscape uses. This communication explores these historical transformations in the landscapes of various areas of Asturias, as well as their current and long-term perspectives.



1989. FROM THE DISPLAY CASE TO THE FIELD: THE RURAL LANDSCAPE IN REPRESENTATION AND ARCHAEOLOGICAL RESEARCH IN VELVA (LIGURIA, ITALY)

Contribution format: Oral  
Contribution authors: Laura Gago-Chorén (Università di Genova)

The Museo Diffuso di Cultura Contadina di Velv. (Castiglione Chiavarese, Italy) is a museum that houses a rich collection of material culture that reflects the rural life of the area until the mid-20th century. It is located in a mountainous region currently characterized by depopulation and the progressive abandonment of the management of environmental resources and agro-silvo-pastoral practices. Far from being a mere repository, the museum actively contributes to regional cultural revitalization, attracting the interest of locals, academics, and tourists. This presentation uses an interdisciplinary approach integrating landscape archaeology, oral history, and written sources analysis to examine how the museum’s narratives interact with collective memory and tangible heritage. It will explore how the landscape represented is articulated with the historical and material realities of a continuously transforming territory. It also reflects on the heterogeneous memories present in the community, questioning whose memories are represented, how they are shaped, and who seeks to preserve them. By contrasting the museum narratives with the findings from field research, the tensions and harmonies between the cultural construction of the landscape and its historical dynamics are highlighted. Building on this, there is also a reflection on the role of rural museums as agents of cultural mediation: To what extent do they perpetuate a static and nostalgic view of the landscape? How could they better integrate the dynamics of change, abandonment, and resilience to address contemporary challenges. Ultimately, this research contributes to the debate on the archaeology of “natural” spaces and the modern visual regime, questioning idealized representations and proposing new interpretations of the landscape as a dynamic and constantly evolving entity. This analysis is framed within the CLOE Project, an interdisciplinary and intersectoral doctoral program at the University of Genoa (MSCA-Cofund), which addresses themes related to sustainable development and conservation in rural and mountainous areas.

1564. A DISSONANT WILDERNESS: ARCHAEOLOGY, HERITAGE, AND THE CONSTRUCTION OF NATURAL LANDSCAPES AT FROST TOWN, NEW YORK

Contribution format: Poster  
Contribution authors: Alexander Smith (SUNY Brockport)

The concept of “wilderness” has long been at the heart of modern place-making and identity construction in the United States. Proximity to wilderness and engagement within it, via leisure activities, hunting, or extraction have the capacity to create or reinforce regional and class-based identities. New York State is no different, with much of its land outside of urban centers devoted to parks, trails, and nature preserves. The idea of entering wilderness and indeed the implication of many nature-based leisure activities is couched in an escape from human influence and interaction, as the spaces are idealized as untouched by anthropogenic forces. However, these concepts mask the industrial and rural heritage of these spaces, many of which were exhausted and abandoned. This poster will discuss Frost Town Archaeology, a project based in the Finger Lakes Region of New York, which explores an abandoned industrial logging and agricultural town. Thinking through William Cronon’s “The Trouble with Wilderness,” this poster will explore how the idea of “wilderness” is imposed on post-industrial landscapes of abandonment, particularly in rural areas in the United States. Finally, this poster will also contend with modern ideas of “nature” and “wild” from a consumptive perspective, discussing how the use of postcards in the 19th and early 20th centuries changed American perceptions of bucolic rural and natural spaces, whic. arguably led to the fetishization of the “wild” in modern American sentiment. Ultimately, this idea has resulted in the erasure of industrial and settler colonial history, which archaeology can perhaps be used to correct.

223 THE RARE, THE COMMON, AND WHAT EVERYBODY NEEDS: EXPLORING THE VALUE OF AESTHETICS IN THE MATERIAL RECORD OF PREHISTORIC EUROPE

Session theme: 5. Finding the way! Archaeological sciences and opening new research perspectives  
Session format: Regular session  
Session keywords: Aesthetics, Value, Prehistory, Desirability, Agency, Socio-economy  
Session organisers: Michael Brandl (Austrian Academy of Sciences, OeAI) – Lasse Soerensen (National Museum of Denmark) – Christina Tsoraki (University of Leicester) – Tasos Bekiaris (University of Thessaloniki) – Mads Bendtsen (Aarhus University)

SESSION ABSTRACT

This session aims to explore the role of aesthetics in the material culture of Prehistoric Europe as a lens through which to understand the development of value, wealth, and consequently social inequality. We see aesthetics as the sensory impact of objects on humans, derived from properties such as color, sound, and size, as well as the complex interactions between people and the world around them through processes of making and using. Gosden (2001: 166) previously argued, “Each culture creates its own sensory environment, both physically through constructing a material world with its own set of sensory properties and culturally through emphasizing and valuing certain types of sense impressions over others,” highlighting the need for a contextual exploration of aesthetics. In examining objects made from different raw materials, we hypothesize a human awareness of stimulating the senses and promoting specific expressions through features such as brilliance, proportions, functionality and design. These aspects document patterns of fashion, taste, value, and potentially beauty. By analyzing artifacts displaying distinct aesthetic characteristics, such as intricately crafted tools, personal ornaments or decorated objects, we consider how aesthetic choices reflect the emergence of economic disparities resulting in more complex social stratification in different prehistoric communities. Employing contextual and multidisciplinary approaches integrating archaeometry, archaeology and socio-economic theory, we wish to examine how aesthetic expressions served as markers of individual and group identity, and established and communicated social status and desirability. One of the key questions we want to explore is whether patterns of wealth accumulation can be attributed to aesthetic preferences, suggesting that the desire for visually appealing items contributed to the formation of elites and the negotiation of power dynamics within and between groups, thus entangling the fluctuations of inequality in prehistoric societies. Gosden, C. (2001). Making Sense: Archaeology and Aesthetics. World Archaeology, 33, 163–167.

CONTRIBUTION ABSTRACTS

2352. SETTING THE STAGE: WHY AND HOW TO EXPLORE THE VALUE OF AESTHETICS IN THE MATERIAL RECORD OF PREHISTORIC EUROPE

Contribution format: Oral  
Contribution authors: Lasse Sorensen (The National Museum of Denmark) – Michael Brandl (Austrian Academy of Science) – Christina Tsoraki (Leicester University) – Tasos Bekiaris (Thessaloniki University) – Mads Bendtsen (Aarhus University) – Mikkel Nørtoft (University of Kiel)

This contribution will introduce the session The rare, the common, and what everybody needs: exploring the value of aesthetics in the material record of Prehistoric Europe, setting the stage for a discussion on the aesthetic dimensions of material culture in Prehistoric Europe and their broader social implications. By adopting a multidisciplinary approach, we aim to critically examine how aesthetic choices influenced perceptions of value, wealth, and inequality in past societies. We begin by exploring the breadth of the term aesthetics within the framework of Prehistoric archaeology, considering how sensory engagements with objects—through attributes such as color, texture, brilliance, and form—shaped human experiences and social interactions. Moving beyond conventional definitions, we investigate the role of aesthetics in material culture as an active force in structuring economic and social systems. Key questions we want to address include: How did aesthetic preferences reinforce or challenge social hierarchies? In what ways did aesthetic expressions act as markers of identity, status, and desirability? Could the pursuit of visually striking or sensorially engaging objects have driven wealth accumulation, leading to the formation of social elites and the negotiation of power? By addressing these issues, we seek to uncover the entangled relationships between aesthetics, value creation, and inequality. Our analysis integrates archaeometry, archaeology, and socio-economic theory, providing a comprehensive framework to reassess the impact of aesthetic considerations on prehistoric social structures. By focusing on aesthetics as a key factor in material culture studies, this session aims to refine our understanding of how sensory and visual preferences shaped economic and social landscapes in Prehistoric Europe.

829. COMPUTATIONAL ASSESSMENTS OF MESOLITHIC ART

Contribution format: Oral  
Contribution authors: Lasselukas Herskind (Aarhus University, School of Archaeology and Heritage Studies)

The portable art of the South Scandinavian Mesolithic (~9000-4000 BCE) forms an extensive corpus of prehistoric art, characterised by chiefly geometric engravings on a wide range of artefacts. A research-historical devaluation of these engravings as ‘poor’ and ‘hasty’ has contributed to a stagnation in research on this ornamentation practice. Such subjective judgments by contemporary eyes is perhaps telling of a dramatic difference in culture-specific aesthetic preferences between these Mesolithic societies and ourselves. In an attempt to bypass such qualitative biases, the present contribution showcases a suite of computational approaches to this Mesolithic art. The abundance of known portable art objects from this period - coupled with the dynamic developments of the societies



that produced them - render this corpus uniquely suitable for innovative, data-driven approaches to understanding artistic behaviour in prehistoric worlds. Drawing on computational linguistics and cognitive science, the study examines spatiotemporal trends in engraving complexity, syntax, and entropy. The findings demonstrate significant temporal changes in aesthetic traditions that correspond closely to the climatic and socio-economic developments of the period. This novel and multidisciplinary approach does not only qualify renewed discussions on the increasing social complexity of these specific hunter-gatherer societies, but also holds the potential of identifying the originally intended purpose of the Mesolithic art.

1336. BRILLIANCE AND COLOURS: PERSONAL ORNAMENTS IN THE NEOLITHIC

**Contribution format:** Oral  
**Contribution authors:** Selena Vitezovic (Institute of Archaeology, Belgrade)

Prehistoric personal ornaments (pendants, beads, bracelets, etc.) are often assumed to have served as amulets, i.e., that they had prophylactic, apotropaic, curative role, and that they also served as status and prestige items. Usually it is assumed that the rarity of the raw material determined their value, i.e., that the ornaments from certain materials (e.g., imported marine shells, metals) were also signifiers for wealth and prestige. However, their other aesthetic traits could be contributing to and increasing their symbolic value. In the Neolithic period in the southeastern Europe, personal ornaments were produced from a variety of materials: lithic, clay, osseous and possibly perishable organic materials. Osseous raw materials (bones, teeth, antler, mollusc shells) were particularly frequent and their origin from living animal certainly contributed to their symbolic value. But these raw materials also possessed some important physical properties: bright colours, and smooth, shiny surfaces. Their surfaces were often meticulously burnished, thus increasing and emphasizing smoothness and shine. Apart from the smoothness and shine, colours also played an important role, especially white colour. Bone items, when fresh, had bright white colour, mollusc shells used for ornaments were often white, and used lithic raw materials were predominantly white stones. Other colours were also valued (reddish colours of some mollusc shells and clay items, greenish nuances of lithic objects), but white colour seems to have been particularly important for the Neolithic communities. In addition, we may note the presence of skeuomorphism – the same morpho-type of ornament was produced in different raw material (shell, bone, stone) but of the same (white) colour. This suggests that some of the aesthetic traits, especially shiny surfaces and white colour, were rather important; they added value to the personal ornaments and contributed significantly to their role as prestigious items.

1755. THE VALUE OF MATERIALS: EXPLORING STONE AXE AESTHETICS IN NEOLITHIC COMMUNITIES IN NORTHERN GREECE

**Contribution format:** Oral  
**Contribution authors:** Christina Tsoraki (University of Leicester) – Tasos Bekiaris (Aristotle University of Thessaloniki)

One of the defining elements of the Neolithic period in Greece is its rich and distinctive portable material culture (e.g., fine pottery, stone tools, figurines, ornaments) alongside abundant architectural remains. The Neolithic period as a whole evidenced an augmentation in material use and elaboration in production techniques. Existing and newly introduced materials offered new sensory experiences to Neolithic communities providing particular ways to make sense of their material surroundings. The material repertoire of Greek Neolithic communities was extensive and included among others: ceramic containers, and occasionally stone and shell ones; axes fashioned from different types of stone particularly serpentinite and other green coloured rocks; figurines made of clay, marble, and less frequently of shell and bone. Alongside these, we need to consider other material components of a more perishable nature (e.g., wood, hide); although lost today, they were once utilised and held an important role in the shaping of enriched understandings of past material worlds. In this contribution we wish to explore the capacities processes of making (e.g., extend and degree of polishing) had to accentuate the visual properties of materials, to create objects of a distinctive appearance and to enable different sensory experiences. We consider these questions in relation to a large assemblage of stone axes and adzes (amounted to more than 2500 objects) that derive from different Neolithic settlements including the settlements of Avgi, Dispilio and Makriyalos, all located in Northern Greece. Comparative analysis of technological processes and depositional practices in different social contexts (houses, communal areas) within these settlements allows us to explore contextualised and historically situated perceptions of aesthetics and material value.

1930. THE FLEXIBLE AESTHETICS OF EVERYDAY OBJECTS AND ROUTINE PRACTICES: EXPLORING THE ROLE OF DECORATED POTTERY FROM NEOLITHIC DISPILIO, NORTH GREECE

**Contribution format:** Oral  
**Contribution authors:** Evangelia Voulgari (Laboratory Teaching Staff, School of History and Archaeology Aristotle University of Thessaloniki) – Marina Sofronidou (Ephorate of Antiquities of Drama) – Kostas Kotsakis (Aristotle University of Thessaloniki)

In this paper, we explore the role of aesthetics in the decoration of pottery from Neolithic Dispilio. Dispilio is the first wetland site excavated in Greece and has been systematically investigated since the 1990s by the Aristotle University of Thessaloniki. Throughout the multi-layered, diachronic development of the settlement from the mid-6th to the early 5th millennium BCE, we observe various changes in the elaboration of ceramic surfaces. In our analysis, we consider decorative techniques, motifs, patterns, pot shapes, and technological features as interconnected elements of a single process, with no one aspect being considered more important or critical than the others. The motifs do not merely adorn clay surfaces but concrete products of the material culture. Their significance lies in this very characteristic: they do not exist in isolation but are integral to the construction of specific artefacts. From this perspective, we explore “the rare, the common, and what everybody needs” within the ceramic assemblage from the earliest two phases of the settlement. By examining relationships of exclusion, alternative possibilities, and identification in the production of decorated pottery, we aim to reveal changes in how people perceived and experienced their world through everyday objects and routine practices.

1316. THE SEA’S ECHOES. ON GLYCYMERIS ORNAMENTS THROUGHOUT PORTUGUESE TERRITORY DURING THE NEOLITHIC AND CHALCOLITHIC

**Contribution format:** Oral  
**Contribution authors:** Cátia Delicado (Uniarq | Cias) – Rafael Lima (Uniarq | Mna | Fct)

Archaeological evidence from early Neolithic groups in different areas is linked to an increase in the importance of personal ornaments. These objects increased compared to previous periods in terms of technology, variability of raw materials and, in general, quality of finish. Personal adornments, even today, are elements that embody and signify the individual’s identity within a human or cultural group. The presence of altered Glycymeris shells in an archaeological context, whether for making beads, pendants or even ring bracelets, certainly has a distinct meaning, especially when found in remote highland areas. Likewise, their presence in environments other than their natural environment, the maritime area, demonstrates that they are an important element for studying the networks of circulation of goods, as well as the symbolic behaviours and aesthetic preferences of these communities. This research provides an overview of the application of Glycymeris in the manufacture of ornamental artifacts. From the information available on these ornaments – such as chronology, typology and the objects biography –we seek to contribute to a complex intercultural archaeological manifestation related to the spread of the Neolithic and Chalcolithic way of life across the Iberian Atlantic facade.

2227. POTTERY AESTHETICS AND SOCIAL DYNAMICS IN THE GREAT HUNGARIAN PLAIN’S MIDDLE COPPER AGE: THE SIGNIFICANCE OF HUNYADIHALOM CULTURE’S SERVING VESSELS

**Contribution format:** Oral  
**Contribution authors:** Zsuzsa Hegedus (Hungarian National Museum Public Collection Centre | Eötvös Loránd University)

The Copper Age of the Carpathian Basin was a period when prestige objects – mainly made of metal – played a crucial role in communicating social differences, particularly in funerary contexts. However, aesthetic design was not limited to high-status or representative artefacts: everyday objects, such as pottery vessels also played a role in conveying important messages within the community. With no known cemeteries from the Hunyadihalom culture (3900–3700 calBC) in Hungary, the study of pottery becomes especially valuable in reconstructing the social structures and inner dynamics of these communities. In this presentation, I examine the Hunyadihalom culture’s fine pottery, which – despite not being heavily decorated – reflects careful design, craftsmanship and a careful attention to detail. The main focus of the study is on the personal serving vessels, which not only appear in great numbers but also show remarkable uniformity. Their standardised characteristics suggest a possible role in strengthening communal cohesion, particularly in the context of communal meals. The potential role of these vessels in symbolically creating equality in the communities is particularly important in the Hunyadihalom culture, as recent studies indicate their presence across all sites, regardless of their position within the settlement hierarchy.



1638. CRAFTING VALUE? EXPLORING THE SIGNIFICANCE OF EXCEPTIONAL OBJECTS IN EUROPEAN NEOLITHIC SOCIETIES

Contribution format: Oral  
Contribution authors: Michael Brandl (Austrian Academy of Sciences, OeAI)

The role of aesthetics in prehistory is an elusive yet crucial aspect of archaeological interpretation. While archaeologists analyze material culture through various frameworks, contextualizing objects within broader socio-cultural narratives remains essential. One key proposition is that aesthetics may have played a fundamental role in the formation of social and economic value systems, with rare and finely crafted objects serving as what we define as “cultural markers.” These markers are typically distinguished by a multitude of qualities – symbolic, utilitarian, or a combination of both aspects. These include properties of the raw materials such as color, texture, translucency, reflectance, as well as availability and the time and skills invested in their manufacture attested by their final appearance. This paper examines case studies of archaeological objects that stand out from the ordinary in various ways. By analyzing such objects through different interpretative lenses, we seek to explore their potential aesthetic significance and their role in shaping or reflecting systems of value in prehistoric societies. This approach highlights the complexity of assigning function and meaning to material culture and the challenges of integrating aesthetics into the archaeological discourse, particularly in relation to the broader development of value concepts. As such, we might consider that aesthetics functioned as a bridge between social and economic value, reinforcing the desirability of exceptional materials and ultimately contributing to the emergence of more structured distribution systems.

224 LEAVE IT! CREATING RUINS. COMPARING ABANDONMENT PROCESSES IN EUROPE (500 BCE-500 AD)

Session theme: 1. On artefacts and beyond  
Session format: Discussion session  
Session keywords: Abandonment, Processes, Iron Age, Classical Antiquity, Europe  
Session organisers: Carole Quatrelivre (Christian-Albrechts Universität zu Kiel) – Elisabeth Goussard (Evéha | Aoroc UMR 8546 - CNRS) – Anne-Lise Baylé (Université Paris I Panthéon-Sorbonne | Arscan UMR 7041 - CNRS)

SESSION ABSTRACT

What does it mean to leave? How do people leave? Archaeological research often prioritizes the vibrant past of sites, yet the complexities of abandonment processes remain underexplored, particularly in the context of recent Prehistory and early History in Europe. This session seeks to address the multifaceted nature of abandonment from the 5th century BCE to the 5th century AD. Abandonment processes happen on multiple scales, are shaped by human and non-human actions and are key to understanding the formation of the archaeological record. By embracing different types of contexts (settlements, necropolises, ritual spaces), we aim to provide a comprehensive overview of abandonment processes, ranging from conspicuous events like conflict and natural disasters to subtler phenomena such as displacement. Beyond site-specific analyses, the issue of abandonment is also relevant to the analysis of settlement systems. Indeed, definitions of abandonment have consequences on our understanding of the cyclical use of space by human societies. We can thus consider the diversity of factors that drive people to return, whether opportunistic or linked to memories of the past. Therefore, we hope to implement a form of dialectic throughout the session, thanks to contributions dealing with two scales of abandonment: . . . Case studies from settlements, funerary spaces and sanctuaries exploring the intentionality, temporality and gestures behind their abandonment. Papers putting to use new methods (imagery, simulations, experimental archaeology) to support their analysis are welcome. . . . Papers delving into long-term population dynamics. This is an invitation to question the significance of abandoning a site and of coming back, addressing its costs and potential advantages, both on a contextual level (replenishing environmental resources, adapting to the communication system) and on a human scale (symbolic advantages, adapting the social structure).

CONTRIBUTION ABSTRACTS

902. FROM RUBBLE TO REUSE: THE END OF AN ANCIENT CULT PLACE IN GALLIA NARBONENSIS

Contribution format: Oral  
Contribution authors: Alexandre Gouverneur (CNRS, UMR 7041 Archéologie et Sciences de l’Antiquité - équipe GAMMA | Université Paris 1 Panthéon-Sorbonne) – Michel Passelac (CNRS, UMR 5140 Archéologie des Sociétés Méditerranéennes.)

The abandonment and dismantlement processes of cult places during late Antiquity has been the focus of archaeological literature since a few decades, especially within the Western Roman Empire. Although historical sources tend to emphasize key events bringing about an abrupt end to the pagan era, the archaeological record portrays a more nuanced and gradual transition. This evidence suggests that local factors and dynamics played a more significant role than an overarching narrative. As such, research must forgo a “one size fits all” approach and focus instead on the more minute details, studied in context. Located in Gallia Narbonensis, near Tolosa, the settlement of Montferrand (ancient Elusio/Elesiodunum) offers insights into those dynamics and allows for the study of an ancient roadside town over time. From an Iron Age oppidum to a late Republican toll station, mentioned in Cicero’s Pro Fonteio as well as in various ancient itineraria, Elusio is a local hub of some import along the voie d’Aquitaine. It was first excavated in 1955; in 1986, aerial photographs uncovered part of a settlement comprised of storehouses, workshops, and paired temples. The latter, at the locality “Le Berrut”, have been investigated since 2022, revealing a half-collapsed, half-dismantled cult place. This Roman phase supersedes an earlier, protohistoric enclosure, before being dismantled in turn. The material found in various robber trenches, as well as other finds, allows for accurate dating of the dismantlement to the last third of the 4th century AD. During this period an early Christian funerary basilica was constructed approximately 140 m to the east, likely reusing material from the temples at “Le Berrut”. This communication thus aims to detail the processes of dismantlement and reuse at a small cult place in Southern Gaul, within the broader context of the settlement’s development as well as the regional dynamics.

87. THE ABANDONMENT OF THE LATE GALLO-ROMAN TEMPLE OF COBANNUS (BURGUNDY, FRANCE)

Contribution format: Oral  
Contribution authors: Rebecca Perruche (UMR/CNR. 6249 Chrono-Environnement)

The sanctuary of Cobannus, near Dijon, in the Burgundy region, has been excavated since 2019. The site is a fairly typical Gallo-Roman sanctuary with a square temple surrounded by a stone temenos wall. It was built over the rectangular Iron Age ditch, which was presumably used as a container for votive offerings. However, the site is best known for the discovery, long kept secret, of an extraordinary treasure trove of Roman statuary and ritual furnishings. Unearthed illegally in 1977, its contents were sold by its discoverer and dispersed among prestigious American collections. In 2008, shortly before his death, full of remorse, he finally confessed everything. The treasure was buried outside the sacred enclosure in a simple pit covered with tiles. The most valuable artworks were the bronze statue of Cobannus, a local deity who was equivalent to Mars, and a pair of portrait busts of rich young boys from the 1st century AD. It also contained numerous small statues, gold jewelry, metal vessels and at least 7,000 coins, stacked in three separate arcas (offering boxes). The most recent coinage dates from the reign of Julian the Apostate (c.363 CE). This treasure therefore represents the closing deposit of the sanctuary, perhaps hastily created in the mid-4th century. However, this burial did not signify the end for the sanctuary. Coins of Valentinian and Theodosius indicate that it was still used as a pagan temple until the end of the 4th century. All the buildings were then violently destroyed by a fire, which led to the final abandonment of the temple. The aim of this paper is to discuss the question of the end of sanctuaries in the Eastern Gaul, as well as the particular journey of the treasure of Cobannus.

670. THE END OF A PROCESS. ABANDONMENT OF MINIATURE WHEEL DEPOSITS IN GAUL.

Contribution format: Oral  
Contribution authors: Elisabeth Goussard (Eveha - UMR 8546 Aoroc)

This paper explores the process of voluntary abandonment in a ritual context. It will focus on offering deposits from La Tène traditions: deposits of miniature wheels, mainly found in the north and east of Gaul. The forms of these offerings and how they were deposited stem from processes that began in the 3rd century BC. They then accelerated sharply during the phases of Roman crises and conquests. One of the most emblematic sites of these exacerbated deposits is La Villeneuve-au-Châtelot in the Aube. This type of mass deposition has led to their association with a phenomenon of ‘Romanisation’. However, the repositories and the areas that housed them were abandoned during the 2nd century AD, well after the integration of Gaul-Belgium into the Roman Empire. This makes it possible to explore the abandonment of a phenomenon when the processes underway reach their conclusion, rather than following a sudden break caused by external events.

150. THE SO-CALLED PILLAR OF OINOMAOS AT OLYMPIA - NEGLECTED, ABANDONED AND PROTECTED

Contribution format: Oral  
Contribution authors: András Patay-Horváth (ELTE Budapest)

Pausanias (5.20.6-7) gives a detailed description of a pillar standing in the very center of the sanctuary of Olympia. No remains have been discovered so far but many different suggestions were proposed for the interpretation of the lost monument. After reviewing these theories, I suggest looking at some classical vase-paintings which



depict mythical events located at Olympia and argue on the basis of these depictions that the so-called pillar of Oinomaos actually was part of an early archaic votive dedication, a pillar supporting an old statue of a goddess. It stood for centuries in the sanctuary, but was neglected and ended up in a ruinous state. Afterwards, sometime before the visit of Pausanias, presumably during the Roman Imperial Period, the pillar has been reinterpreted as the last standing remain of the palace of Oinomaos, a local mythical ruler and serious measures were taken to protect and to conserve it. This reconstruction of the events is completed by considering the questions, when and why the processes of abandonment and reinterpretation may have taken place.

1811. MULTIPLE ABANDONMENT PROCESSES IN ETRUSCAN NECROPOLISES

**Contribution format:** Oral  
**Contribution authors:** Anne-Lise Baylé (Université Paris 1 Panthéon Sorbonne | ArScAn (UMR 7041))

Etruscan cities and their necropolises are known for the stability of their occupation: the residential and funerary poles that began at the Iron Age were occupied continuously until the Roman era. The necropolises form vast complexes where tombs from all periods seem to be juxtaposed without ever abandoning areas. However, as we zoom in, we observe various abandonment phenomena that question this apparent stability. What processes of abandonment are at work in Etruscan necropolises? The necropolises of Cerveteri and Tarquinia will enable us to explore these degrees of abandonment on the scale of individual tombs and burial quarters. Etruscan tombs are often collective tombs used over a long period. In this context, we will investigate tomb closures, commemoration rites, and their reuse. A few cases of unfinished construction will complete our reflection on the variety of abandonments within necropolises. In addition, some sectors are subject to fluctuations in their funerary vocation, as stone extraction quarries are visible amid the tombs. Finally, we'll examine the spatial evolution of burial cores, highlighting the use of new spaces, reoccupations, and abandonments.

2377. ALTERNATIVE MODELS FOR UNDERSTANDING THE SPATIALITY OF THE SYMBOLIC LANDSCAPE IN IRON AGE BASQUE COUNTRY

**Contribution format:** Oral  
**Contribution authors:** Jagoba Hidalgo-Masa (University of the Basque Country (UPV/EHU)) – Jesús García Sánchez (Spanish School of History and Archaeology in Rome (EEHAR-CSIC))

The stelae of the eastern Cantabrian region (Iberian Peninsula) have traditionally been associated with the fortified enclosures found in this territory, based on discoveries from the fortified settlement of Berreaga, where the highest concentration of finds has been recorded. While this connection is undeniable, this hypothesis fails to explain why many of these stelae have no spatial link to these central settlements and merely suggests a certain diffusion or redistribution of these elements across the territory. In our view, this hypothesis stems from rigid, dichotomous interpretative frameworks—widely accepted and internalised within academic discourse (e.g., empty vs. full, civilised vs. uncivilised)—which attribute all social activity to the space enclosed by walls (the centre) while overlooking the rest of the landscape (the periphery). Therefore, in this paper, we aim to explore the construction of the symbolic landscape of these Iron Age communities through the study of stelae and the involvement of open settlements or villages in this process. We will also approach the process of abandonment of both religious landscape and settlement centers, and the formation process of the archaeological record that produce a new Christian landscapes based on the reutilization of these Iron Age stelae.

264. ABANDONED IN ARCADIA: INSTANCES OF LEAVING AND RETURNING AT ARCADIAN LATE CLASSICAL AND HELLENISTIC SETTLEMENT SITES

**Contribution format:** Oral  
**Contribution authors:** Regina Klöckl-Zoric (University of Graz)

Now as in Antiquity, the region of Arcadia on the Peloponnese, Greece, is dominated by high mountains, whose valleys are often difficult to access. This, however, did not stop people from settling there, creating poleis, walls, and sanctuaries – and leaving them. In some cases, the reasons for leaving seem obvious. The city of Mantinea, for example, was violently destroyed in a well-documented assault. Tegea, located nearby, can serve as an example for the Greek phenomenon of people peacefully leaving their settlements to perform a synoikismos and move together in a new polis. In other instances, the abandonment process is enigmatic, even more so when only part of a town is affected. Such is the case at Pheneos. Activities in a “sacred district” of the Archaic-Classical period came to a halt when the construction of a defensive wall started. The wall was never completed, though, and the area was left shortly after construction had begun. It was not until more than 100 years later, around 150 BC, that people would return: They chose the former “sacred district” to hold a banquet that is currently considered a one-time event, not necessarily of cultic nature. This short-lived return, as well as the general abandonment of the area, could be attributed to the same symbolic meaning. While often people truly left, stories of abandonment were sometimes constructed. In a project funded by the Gerda Henkel Foundation, starting from autumn

2025, the author will investigate truly and allegedly “lost cities” in Arcadia. The current paper, though, focusses on real abandonment processes and instances of coming back in late Classical and Hellenistic Arcadia. Case studies from settlements will ask for a definition of abandonment, addressing its intentionality and temporality, as well as the possible significance of return.

1332. ‘THERE AND BACK AGAIN’ - DEMOGRAPHIC DEVELOPMENTS OF PRE-ROMAN IRON AGE CEMETERIES IN JUTLAND AND NORTHERN GERMANY

**Contribution format:** Oral  
**Contribution authors:** Lynn Stetzuhn (Institute for Prehistoric Archaeology, Freie Universität Berlin)

‘Abandonment’ is one of the central recurring themes of research into the Early to Late Pre-Roman Iron Age shifts (c. 4th-3rd century BCE) in Northern Germany and Jutland. Whether pertaining to cemeteries, settlements or agricultural sites, the desertion and restructuring of Pre-Roman Iron Age landscapes has been linked to a variety of causes and social processes. Most prominently, a connection to mobility and migration in relation to cultural changes in Iron Age Romania and Moldova has been proposed. Cemeteries during this period display a noteworthy range of developments, from continuous occupancy, over hiatuses connected with changes in structuring, to abandonment proper. Their comparable publication quality and status across the region of research makes them, unlike settlements or field systems, a particularly valuable source for comparative research into population dynamics. Through a diachronic (c. 6th century BCE - 1st century AD) evaluation of statistically modelled cemetery occupancy changes and site-specific demographic data, this study aims to evaluate the chronology, spatial patterns, and social impacts of the discussed processes embedded in an anthropological framework of mobility, migration and social change. The results are illustrated through qualitative observations of exemplary cemeteries, discussing common trends but also the diversity of abandonment and (re-)occupation phenomena.

888. A GALLO-ROMAN AGRO-PASTORAL LANDSCAPE FOSSILIZED UNDER THE STATE FOREST OF BROTONNE : ABANDONMENT AND REOCCUPATION PROCESSES OF A NORMAN TERRITORY

**Contribution format:** Oral  
**Contribution authors:** Anaïs Musseau (Université Paris Nanterre | UMR 7041 ArScAn | Labex PasP Les Passés dans le Présent) – Christophe Petit (Université Paris I Panthéon Sorbonne | UMR 7041 ArScAn) – Ricardo González Villaescusa (Université Paris Nanterre | UMR 7041 ArScAn)

The State Forest of Brotonne in Normandy (France) preserves remnants of a Roman-era agro-pastoral landscape which can now be studied through archaeological, paleoenvironmental and LiDAR data. The latter reveal microtopographical anomalies - anthropogenic structures - reflecting the intensity of land use and occupation density in this region during the Protohistory and Antiquity (road networks, field systems, rural settlements, ponds in a water-scarce environment, etc.). While the occupations and the landscape in which they were situated are now well understood, the factors and conditions leading to the abandonment of these sites around the 4th century AD remain unclear. Textual and paleoenvironmental evidence at least suggest a decline in the area, with forest reversion well underway by the middle of the 7th century AD. Although the transition period between Antiquity and the Middle Ages raises many questions, this now-forested area notably saw the founding of two priories, which were later abandoned a few centuries after their establishment. The ancient structures, namely the hundred or so ponds in the Forest of Brotonne, once neglected, also create new opportunities and contribute to increased activity in the region during the medieval and modern periods (sylvopastoralism, hunting, exploitation of forest resources, etc.). The Gallo-Roman occupation of this land has even shaped both the current environment and biodiversity, with the ancient ponds now providing valuable ecosystem services and acting as a significant hydraulic reserve in this area with limited water resources. Thus, the abandonment of ancient agro-pastoral sites and their associated field systems did not mark the permanent desertion of the territory. Rather, the region has undergone complex dynamics of adaptation, transformation, and re-use of spaces over the centuries, responding to the needs of local populations and influenced by social, economic or environmental factors.

652. FARMS ON THE MOVE: QUESTIONING CYCLICAL DISPLACEMENT AND REUSE OF RURAL SPACES (PARIS BASIN, 500-30 BCE)

**Contribution format:** Oral  
**Contribution authors:** Carole Quatrelivre (Christian-Albrechts Universität zu Kiel)

Iron Age societies north of the Alps, pertaining to the La Tène culture, are mostly rural societies, in that wealth and power are derived from land ownership and management. This specificity has led to particular interest in the functioning and lifecycle of farms. Recent data acquired through commercial archaeology have demonstrated the high density of farms and the frequency of their reorganization over the last five centuries BCE. Different scenarios of rural development have thus been described and, in particular, the gradual displacement of farms over the course of time. This phenomenon can be understood as a practical response to social and environmental



constraints, whether it’s the spread of new family nuclei or the search for new areas to exploit. This paper will attempt to pinpoint specific dynamics of the abandonment and cyclical reuse of farms or farmed areas in the Paris Basin between -600 and -30. Environmental tensions will be assessed thanks to a land suitability model combined with a qualitative evaluation of pollen, carpology and climate data, whereas social constraints will be modelled based on textual and archaeoethnological evidence that may apply to Iron Age societies in Europe. The synthesis of both will lead to precise reconstruction of farm displacement scenarios and to deciding whether they should be considered as abandonment processes.

2036. BOBIGNY: A TWICE-ABANDONED SETTLEMENT (PARIS AREA : 4TH C. BC - 4TH C. AD)

**Contribution format:** Oral  
**Contribution authors:** Adonis Jeannès (UMR 8215 Trajectoires | Département de la Seine-Saint-Denis)

Bobigny is an archaeological site located a few kilometers north of Paris. About fourty preventive excavations contributed to the knowledge of an open latenian urban area covering some thirty hectares. In addition to its necropolis containing 515 burials, the site was occupied from the 3rd to the 1st century BC, with some evolutions in the dynamics of occupation. Different craft activites such as butchery, metallurgy (iron, copper alloy), and coin manufacturing formed the economic fabric of this place, integrated into the regional network of Parisii tribe. Abandoned for the first time around the middle of the 1st century BC, a secondary roman settlement developed at the end of the 1st century AD. A new spatial organization is characterized by the construction of several build-ings of various sizes around a crossroad of stone paths, but this occupation was less dense than in the previous period. The peak of this secondary urban area ocured in the middle of the 3rd century AD. Very few remains dated back to the 4th AD century because the site was abandoned once again. Is this linked to historical events ? The first abandonment was around the period of the Gallic War, while the abandonment in Roman times seems to correspond to the beginning of the decline of the empire. Are the reasons more local ? A relocation to another major site in the region ? Although Bobigny was an urban center during the latenian and the Roman periods, it was not occupied until the 20th century. The land was cultivated until it became the focus of urbanization in the inner suburbs of Paris.

2489. JUST TO POP IN. A BRIEF HISTORY OF THE PÚCHOV CULTURE IN THE CZECH REPUBLIC

**Contribution format:** Poster  
**Contribution authors:** Jirí Geršl (Masaryk University in Brno, Department of Museology and Archaeology)

The poster I am going to present will introduce the audience to the Púchov culture and its occurrence in the Czech Republic which is confined to Moravia. The Púchov culture developed under the strong La Tène influence from the original Lusatian culture substrate in the 2nd century BC in the mountainous area of today’s Western a Northern Slovakia. Gradually it spread to the area of current Northern Poland and Eastern Moravia. The main attention will be aimed at a specific settlement strategy based on the rather abrupt appearance in the mountain-ous area of eastern Moravia, the region previously largely uninhabited for hundreds of years. In many cases, the Púchov culture newcomers decided to occupy the very same sites as their predecessors in the early Iron Age. The issue of the coexistence of Púchov culture and original La Tène settlements in the contact zone area will also be discussed with several possible models presented. Last but not least sudden abandonment and withdrawal of Púchov culture after 50 BC back to the territory of today’s Slovakia will be examined offering different views of this event. Ultimately phenomena of much younger Roman coin finds near the former Púchov culture sites will be presented as well as prominent trends of later utilization of these locations in medieval times.

225 THE ARCHAEOLOGY OF ROMAN PEASANTRY. LOOKING FOR NEW RESEARCH FRAMEWORKS, BETWEEN DETECTION AND INTERPRETATION

**Session theme:** 3. Exploring methods in research, education and communication  
**Session format:** Discussion session  
**Session keywords:** Field survey, Ancient landscapes, Roman rural economies, Roman peasantry, Remote sensing  
**Session organisers:** Jesús García Sánchez (The Spanish National Research Council - CSIC) – Devi Taelman (Ghent University) – Fernando Moreno Navarro (Roma Tre)

SESSION ABSTRACT

In recent years, the increasing availability of archaeological data from diverse sources, as field survey, excavation, geospatial data—encompassing data collection and legacy data being made publicly accessible—has enhanced our understanding of the nature of the Roman rural word. This wealth of new data needs to be integrated into

current narratives about the exploitation and management of the Roman landscape. Non-invasive methodologies in general may no longer be cutting-edge topics in archaeology, the vast and growing datasets present interpretive challenges we want to address, especially chronological and functional classification. While large villas remain central in Roman landscape studies, an in-depth exploration requires considering the full diversity of rural sites, ranging from the market-oriented villa system to small-scale farming. It is essential to articulate the questions our archaeological survey data can address and those beyond our current reach. Elements such as the archae-ology of subaltern rural classes, land ownership, and chronological frameworks are particularly challenging. These factors are crucial to constructing nuanced narratives about the exploitation and social dynamics of the Roman rural landscape across Europe and North Africa This session calls for discussions on the Roman rural landscape, emphasizing the need for diverse methodologies, such as non-invasive methods, geospatial data, and field surveys—to deepen our understanding of ancient landscapes, particularly the Roman rural world. We encourage contributions that: •Examine how diverse geospatial methodologies can deepen our understanding of the Roman rural world. •Reflect on the evolution of landscape archaeology (excavation and survey) and new nuanced methods that enhance understanding at both off-site and intra-site scales. •Articulate questions that our archaeological survey data can realistically address and those beyond our current reach, considering elements such as the archaeology of subaltern rural classes, land ownership, and other challenges related to the chrono-logical and functional classification of material assemblages.

CONTRIBUTION ABSTRACTS

2428. BEYOND THE VILLA: APPROACHES TO PEASANT SETTLEMENTS IN THE ROMAN WEST

**Contribution format:** Oral  
**Contribution authors:** Fernando Moreno-Navarro (Roma Tre University | Alicante University)

Roman rural settlements have traditionally been studied through the villa model, which entails a very specific economic and productive structure that is well documented in historiography. Currently, increasing research is focusing on a complex diversity of peasant settlements that do not fit into this paradigm. This paper explores two approaches to characterising the Roman rural world in different geographical contexts: Roman Carpetania (Madrid, Central Spain) and the mountainous landscape of the Monti Lucretili (Lazio, Central Italy). In the Iberian case study, the archaeological record generated by the urban expansion has made it possible to identify a series of peasant settlements that provide a more detailed picture of the economic and social dynamics in the rural periphery of the Roman world. On the other hand, in the Italian case study, a landscape archaeology approach has been adopted to understand the diachronic evolution of the rural and mountainous landscape. This methodology allows for an analysis of land use, settlement distribution, and the relationship between population and natural resources. In both cases, Network Analysis has been used to characterise economic dynamics. In Carpetania, it has been applied to model consumption patterns, goods distribution, and territorial articulation, and reveals the integration of peasant settlements into different exchange networks. In Monti Lucretili, network analysis enabled us to understand of resource accessibility, their reuse, and the organisation of the territory. The comparison of these two case studies allows us to discuss the different methodologies used in the identification of rural settle-ments and the challenges posed by different landscapes in their characterisation. The aim is to go beyond the mere detection of archaeological sites (dots on a map) and address social organization, access to resources, and the diachronic evolution of the landscape.

573. BEYOND THE VILLA: RETHINKING ROMAN RURAL LANDSCAPES IN LIMINAL TUSCANY

**Contribution format:** Oral  
**Contribution authors:** Valentina Limina (FNRS, UCLouvain)

This paper presents the results of the RELOAD Project, which examines the liminal landscapes of northern Tuscany (Volterra territory) between the 3rd century BC and the 5th century AD. Moving beyond the villa-cen-tered paradigm and employing a multifaceted methodological approach, this study reassesses the crucial role of rural landscapes as dynamic hubs of innovation, knowledge exchange, and economic interaction. Through the integration of noninvasive methodologies—including aerial photography, GIS-based predictive modelling, and systematic surface survey data—with place names, literary sources, epigraphy, and legacy data, the research has identified a diverse range of rural site. (from small-scale farms and dispersed agricultural production units to specialized resource exploitation sites), revealing a far more complex and interconnected rural world than previously assumed. A key focus of this paper is the challenges of chronological and functional classification in survey data, aiming to refine our understanding of occupational patterns and long-term landscape evolution. The findings suggest that rural and frontier areas were not marginal spaces, but active laboratories for tech-nological transfer and adaptive strategies, where communities engaged with geomorphologically complex and hydrologically unstable environments. The analysis of material culture, combined with geospatial data, offers a new perspective on land use strategies, mobility networks, and the circulation of goods between rural sites



and regional markets. Moreover, this study highlights the often-overlooked presence of subaltern rural communities, whose land tenure and economic production roles are frequently obscured in traditional archaeological narratives. By integrating diverse methodologies, this research contributes to broader discussions on the inter-connectedness of rural settlements, social hierarchies, land ownership, and the long-term transformation of the Roman countryside across the Mediterranean

1561. CLIMATE VARIABILITY AND RURAL SETTLEMENT DYNAMICS IN NORTHWESTERN ITALY (5TH C. BC - 5TH C. AD)

**Contribution format:** Oral  
**Contribution authors:** Phaedra Criaco (Macquarie University | University of Groningen) – Devi Taelman (Ghent University) – Ralf Vandam (Vrije Universiteit Brussel)

This paper presents the results of an interdisciplinary study aiming to reconstruct the climate of northwestern Roman Italy between the 5th century BC and the 5th century AD. This was done by exploring how far the archaeological, historical and palaeoclimate resources available today can help reconstruct ancient climate and its effect on local agriculture and land-use strategies. Data from two archaeological survey projects in northwestern Italy (Polcevera Valley and the Ager Lunensis) are used as case studies to analyse settlement dynamics, documenting recurring trends or changes like increase or decrease of material scatters throughout time. By reconstructing climatic variability using paleoclimate records from four speleothems in the region, combined with information from written sources and settlement patterns, this study provides insights into the impact of climate on local agriculture and land-use strategies. While a full reconstruction is not yet feasible due to limitations in the available data, like the low spatial and chronological resolution of the palaeoclimate records, the project results indicate a correlation between climate variability and settlement patterns in the rural landscape of northwestern Italy, particularly in marginal areas. This material reality differs from contemporary written accounts on farming, which were authored by and for the elite, reflecting idealised agricultural rather than lived experiences. The contrast between textual sources and archaeological data underscores the potential and need for an interdisciplinary approach integrating diverse datasets to reconstruct the Roman rural landscape exploitation and refine our understanding of climate-driven land-use changes in Roman Italy.

2130. INTERPRETING A NEW ROMAN LANDSCAPE, THE ARLANZON RIVER VALLEY

**Contribution format:** Oral  
**Contribution authors:** Jesús García Sánchez (Spanish School of History and Archaeology in Rome (EEHAR-CSIC))

We will analyze how remote sensing and archaeological interpretation of the Arlanzón River valley, located in the central Iberian Peninsula, can contribute to a revised understanding of the impact of the Roman conquest on the region’s landscape and settlement patterns. This presentation will explore the integration of new data obtained from satellite imagery and aerial photography into existing archaeological and historical frameworks, demonstrating how these methodologies enhance our comprehension of Roman territorial organization and resource exploitation. The dataset originates from systematic aerial surveys conducted along the Arlanzón River, incorporating high-resolution imaging techniques alongside multispectral analysis of key archaeological sites. By employing these remote sensing tools, we can detect subsurface features, and identify spatial patterns of occupation. This approach enables the formulation of new hypotheses regarding the nature and extent of Roman agricultural and extractive activities in peripheral areas, particularly in relation to smaller settlement sites and their economic functions within broader regional networks. Furthermore, this discussion will engage with theoretical models of Roman peasantry, rural agency, and the socio-economic dynamics that shaped interactions between rural communities and urban centers. While extensive research has been devoted to major Roman cities and their administrative functions, the study of secondary settlements and their role in sustaining economic and social structures remains comparatively underexplored. By reassessing these dynamics through remote sensing and landscape archaeology, we aim to refine our understanding of how Roman imperial expansion transformed rural economies and contributed to long-term shifts in land use, mobility, and local agency.

2445. EXPLORING THE ROMAN RURAL LANDSCAPE OF ALENTEJO: NEW PERSPECTIVES ON SITES AND SETTLEMENTS THROUGH AERIAL ARCHAEOLOGY

**Contribution format:** Poster  
**Contribution authors:** Gil Vilarinho (University of Evora)

The occupation and exploitation of rural areas during the Roman period have received considerable academic attention since the early days of archaeological research. Roman villas, in particular, have not only been a topic of recurrent interest but also the most recognisable feature of the Roman rural landscape. Nevertheless, the current knowledge on these sites remains largely determined by several preconceptions and, particularly, the understanding of the rural landscape has become somewhat hindered by a last perspective characterised by a dichotomy

between urban and rural, cities and villas, which presents a rather limited interpretation for the archaeological evidence available. The increasing availability of aerial images and other geospatial datasets has provided a new toolkit to explore the Roman rural landscape, allowing not only the identification of new features but also providing new data for previously unknown sites, sometimes resulting in significant reinterpretations. Analysing several case study sites from the Alentejo region, in southern Portugal, this study presents new archaeological evidence for a complex and dynamic rural landscape. Distinct types of sites suggest different activities across the region and, contrasting aerial imagery interpretation with data from archaeological surveys and excavations, it is also possible to assess changes and transformations over geographical areas and centuries.

226 CONCEPTUALISING LOSS IN A CLIMATE CRISIS

**Session theme:** 7. Climate Change in the Past and Present  
**Session format:** Discussion session  
**Session keywords:** climate change, heritage management, cultural heritage, archaeological management, loss, curated decay  
**Session organisers:** Sarah Miller (Florida Public Archaeology Network, Flagler College) – Edward Pollard (The Discovery Programme: Centre for Archaeology and Innovation Ireland)

SESSION ABSTRACT

Curated decay, managed decline, loss – these are all terms that have permeated rhetoric around management of the historic environment since the publication of Caitlin DeSilvey’s Curated Decay in 2017. The concept of loss of material is central to archaeological work, as the process of archaeological excavation is both and destructive. Archaeologists must balance the potential disturbance of the archaeological record during excavation with the positive outcomes of the new material, information, and interpretation. Our current archaeological methods and heritage management practices developed during the peak period of global warming. Climate change is already exacerbating pre-existing issues of conservation and management, as well as impacting the in situ archaeological record. Recent research demonstrates that the level of degradation underground is accelerating at the same pace as above ground. We invite submission of papers on how climate change impacts conservation and management of the historic environment, cultural heritage, and sustainability. We further invite submissions on how climate is impacting the archaeological record, whether that be in situ sites, sites previously excavated, or the management of post-excavation materials that include soil samples, drawings, photo negatives and digital data. For example:

- How do we adapt our own practices to be resilient in the face of ever-changing climate?
- How can archaeologists and heritage professionals use terms like ‘curated decay’, ‘managed decline’, and ‘adaptive release’ to inform research methods and practices.
- What steps can be taken to make archaeological practice more sustainable going forward?
- Can coastal erosion provide opportunities for archaeological discovery or new ways of heritage management.
- How do we meaningfully engage communities in conversations around these topics? What ethical considerations should be taken into account in these conversations?

CONTRIBUTION ABSTRACTS

523. THE HERITAGE OF LOSS AND THE LOSS OF HERITAGE IN THE VIRGINIA BLUE RIDGE, U.S.

**Contribution format:** Oral  
**Contribution authors:** Carole Nash (James Madison University)

The 18th century diaspora of First Peoples from the Virginia uplands rendered them invisible in settler-colonialist histories, ultimately resulting in the eugenics-influenced paper genocide of the 20th century. The forced removals of 470 families to create Shenandoah National Park in the 1930s, and a federal agency practice of minimizing their presence, rendered these communities invisible to visitors who, today, idealize ‘mountain life’ as part of a tourist experience. The archaeological record, in conjunction with oral histories and documentary research, has been integral to illuminating these pasts of removal and loss. However, as the impacts of climate change compromise the integrity of upland cultural heritage, the multi-millennia stories are again threatened with erasure of a different kind. Contemporary Indigenous communities and descendant heritage groups, active in reclaiming and preserving their histories, look to archaeologists and agency managers to take measures against the threat of tangible heritage loss and the ensuing loss of identities that rely on these resources.



1782. MICRO-CLIMATE MODELLING IN COMPLEX HUMAN-MODIFIED ENVIRONMENTS: EVIDENCE FROM VIETNAM’S NORTHERN LIMESTONE KARST

**Contribution format:** Oral  
**Contribution authors:** Liamog Magill (Queens University Belfast | Bournemouth University | Trang An Management Board / Ban Quản lý Quần thể danh thắng Tràng An | Department for Infrastructure / An Roinn Geilleagair)

This presentation will draw principally on field-data collected within the Tràng An World Heritage Site, Red River Delta, Vietnam – a country highly vulnerable to climate-change stress. The Tràng An property covers almost the entirety of an isolated limestone massif (c. 6300 ha) comprising a geomorphologically and ecologically complex late evolution tower karst landscape. Palaeo-environmental evidence previously obtained from the study area of this application – the Tràng An World Heritage Site, a limestone massif on the southern margin of the Red River Delta, Vietnam – indicates broad vegetational continuity over the last c. 20,000 years. This level of stability suggests that the property’s complex tower karst topography has provided long-term climate-buffering characteristics that have enabled persistence across major climatic and environmental transitions. In view of the highly specialised ecology of tropical tower karst settings, the unique archaeological archives they contain, and the expected dual-impacts of 21st century climate change and urban expansion, there is an urgent need to better understand the relationship between these topographically complex landscapes and the micro-climates they foster. Analysis and modelling will initially exploit a large existing dataset (>100,000 datapoints), tracking temperature, humidity, and dew point at high resolution intervals between Nov. 2019 – Nov. 2020, and utilise (GIS) topographic data of the site, available through QUB. A fieldwork season has been completed in 2024; exploring the landscape in person, retrieving outstanding data loggers and placement of additional loggers. The presentation will report on preliminary results of the study, including data from the 2024 fieldwork.

317. IDENTIFICATION AND PRIORITIZATION OF GULLAH/GEECHEE SITES ALONG THE ST. MARY’S RIVER: PATHWAY TO SPATIAL REPARATIONS AND INCLUSIVE-BASED PRESERVATION PLANNING

**Contribution format:** Oral  
**Contribution authors:** Sarah Miller (University of Florida | Florida Public Archaeology Network)

Gullah/Geechee people have lived in northern Nassau County, Florida, for hundreds of years. Yet, history books and cultural corridors negate their presence. The intentional displacement and erasure of the Gullah/Geechee culture on the landscape is due largely to corporate and federal land use and development in the northeast corner of the state. To add to these obstacles, sea levels are rising 20% faster than the global average on the Atlantic Bight and storm surge threats in the state are ranked highest in Nassau County. This project will use the North American Heritage at Risk (NAHAR) pipeline (modeling, monitoring, meeting, methodizing, mitigating) to gather data for the community to make informed decisions and create a pathway to spatial reparations. Modeling will produce an archaeological triage assessment (ATA) using a variety of environmental tools that predict sea level rise, marsh migration, storm surge, and development of rural areas. Monitoring will inventory and assess site conditions for all known Gullah/Geechee sites in the project area. Meeting includes public engagement strategies, including Community Conversations about Heritage at Risk (CCHAR), interviews and surveys. The final steps of methodizing and mitigating will align project deliverables to the priorities of the community. This paper presents the preliminary findings from the first year of the project.

2163. ASSESSING AND RECORDING THE ERODING CULTURAL HERITAGE AROUND ST. JOHN’S POINT, CO. DONEGAL, IRELAND

**Contribution format:** Oral  
**Contribution authors:** Edward Pollard – Cormac Duffy – Robert Shaw – Rebecca O’Reilly – Hannah Genders Boyd – Anthony Corns (The Discovery Programme: Centre for Archaeology and Innovation Ireland)

Rahan Castle on St. John’s Point in Co. Donegal in NW Ireland is a late medieval tower house and bawn on a small promontory experiencing erosion and collapse. Possibly built on an earlier promontory fort, this castle became associated with the MacSweeney family of Scottish descent who became important galloglasses (mercenaries) in the 14th century in Ireland. A local voluntary community initiative supported a conservation plan in 2022 involving regular maintenance for the structure, determination of extent, and quinquennial inspections. However, the severity of erosion and more recent further collapse suggest the site has a short future lifespan. Although, the castle is most recognised endangered site, the exposed nature of the headland of the surrounding 10km-long St. John’s Point with monuments dating from prehistoric cairns, church, friary, and lighthouse suggested that there could be more unrecorded endangered heritage. A Coastal Zone Assessment to provide an informed assessment of current archaeological resources and any associated hazards and risks was undertaken in 2024. Supported by the local community to access the coast, intertidal survey recorded evidence of landslides,

slumping and rockfalls, along with 138 cultural heritage features. Of these, only nine were already listed in the national inventories. These were ranked into importance, vulnerability to climate change, and cultural value. Sites considered of national importance included potential prehistoric stone-lined mounds and pits, and a medieval slag heap. This has led to making recommendations for future sustainable recording, which has begun with photogrammetry of recent collapse, and Uncrewed Aerial Vehicle modelling. Dissemination of the findings has involved community meetings discussing climate change stories and sites they believe to be important. The landing places associated with the lighthouse, herring and other types of fishing were considered as regional importance, with graffiti and intertidal boundaries of local importance.

228 SARDINIA AS PRAXIS: DECOLONISING EUROPEAN ARCHAEOLOGY THROUGH A JOINT FEMINIST-POSTCOLONIAL APPROACH

**Session theme:** 2. Intertwined Epistemologies: Transcending the Data – Theory Divide  
**Session format:** Regular session  
**Session keywords:** Decolonisation, Colonialism, Feminism, Postcolonialism, Sardinia, Subalterns  
**Session organisers:** Mauro Puddu (University for Foreigners of Siena) – Julia Gustafson (University of Cambridge) – Alessandro Panetta (Consiglio Nazionale delle Ricerche - Cagliari)

SESSION ABSTRACT

At the heart of the Mediterranean network of people and things, Sardinia has endured centuries of exploitative control from Carthage, Rome, Constantinople, the Crown of Aragon, the Savoy house and, ultimately, the Italian Government, whose strategy, as philosopher Antonio Gramsci (1919) claim, amounted to full colonial treatment—worse, even, than that enacted upon the official colony of Eritrea. However, the tension between people in Sardinia and overseas powers have left plenty of material and immaterial signs of creative practices of local communities aimed at claiming their dignity, regaining control of their exploited bodies and language, and curating their social relationships, creating dynamic identities that challenge colonial narratives of stasis. Has this colonial experience been fully considered in reconstructions of Sardinia’s archaeological heritage. From Cicero’s dehumanization of its women to 19th-20th century narrative, ethnographic, and television accounts, Sardinia has survived numerous essentialisms. Although Sardinia’s case is strongly shaped by Italy’s inner traits, such as the Southern question, we suggest that this specific historical situation offers countless opportunities to advance the decolonial agenda of European archaeology. This prepares us to recognize ongoing colonial frameworks and implement decolonisation elsewhere. While often used ambiguously, we define decolonisation as the identification of colonial paradigms and the actions taken to dismantle and unsettle those structures primarily via the implementation of the silenced – women, enslaved, indigenous, rural, subaltern - voices. In this session, we will discuss archaeological case studies in Sardinia from prehistory to the present day, actively engaging with the deconstruction of frameworks that have used colourism, othering, androcentrism, and racial stereotyping to achieve the outright dehumanization of its people as a justification for control of its resources. We want our intersectional focus on subaltern voices to reveal how identities are continuously negotiated and transformed, rather than fixed or unchanging, even in contexts of colonial oppression.

CONTRIBUTION ABSTRACTS

1122. THE SUBALTERN NURAGIC: STUDYING BRONZE AGE SOCIAL DYNAMICS ON A “SMALL” ISLAND

**Contribution format:** Oral  
**Contribution authors:** Emily Holt (Cardiff University)

Archaeology has a developed toolkit for understanding inequality. The lives of the subaltern are written in their bones if nowhere else – archaeologists are skilled at recovering and reading this evidence, becoming witnesses to experience that was systematically hidden or ignored while these individuals were alive. The hybrid identities that promote survival in colonial contexts are captured in objects made in the forms of the colonizers but through the habitus of the colonized – archaeologists are skilled at identifying and interpreting these solidified tensions. The lives of women are reconstructed through spatial analyses, craft studies, isotope analyses, and artistic representations, among other methods, and careful combinations of aDNA analyses and material culture studies can elucidate the contributions of nonbinary genders to past societies. What does it look like for an archaeological dataset itself to be the subaltern? The Nuragic Culture of Sardinia developed as part of the vibrant and interconnected Mediterranean Bronze Age now identified with iconic material culture such as the bull-leaping fresco at Knossos or the funerary mask of Tutankhamun. Ongoing research continues to uncover trade connections between the Nuragic Culture and the wider Mediterranean, demonstrating that Bronze Age Sardinia was not the “periphery in the center” it was once considered to be. With thousands of known sites, the Nuragic Culture



provides a wealth of opportunities to study different paths to social complexity. However, Sardinia’s distinctive nuraghi, though a meaningful symbol on the island, have yet to achieve the widespread recognition of comparable East Mediterranean symbols. This paper considers evidence for the development of social inequality in the Sardinian Bronze Age alongside qualitative reflections on fifteen years of studying the Nuragic Culture, arguing that not only does the Nuragic Culture provide fascinating alternative narratives of social dynamics, simply studying these narratives can be its own act of decolonization.

**1317. TOWERS, BISHOPS, KINGS AND PANS. SALT PRODUCTION IN THE CHESSBOARD OF NORTH-WESTERN SARDINIA FROM THE MIDDLE AGES TO CONTEMPORARY AGE**

**Contribution format:** Oral  
**Contribution authors:** Alessandro Panetta (Institute of Mediterranean Europe History (CNR))

Starting from the 12th century, written sources begin to document with ever greater density the presence along the north-western coasts of Sardinia of productive activities linked to the extraction of salt from sea water. The life of these salt pans, around which the economic interests of various types of subjects gravitate, is intertwined over time, especially starting from the 16th century, with that of the structures and infrastructures linked on the one hand to the military defense of the coasts and production activities (coastal towers) and on the other linked to the transport of goods and people (ports and roads). The research described here has seen the attempt to identify on the ground the material traces that these activities have left, which in turn are the outcome and testimony of power dynamics that go beyond the simplistic binary opposition between external powers and local communities in the perspective of a “historical” colonialism predatory of the island’s resources. The salt pans can be traced back to political and religious institutions, but also to individual owners, while towers and landing places do not respond solely to centralist or top-down logics, but are also sometimes linked to individual initiatives or those of certain social groups. The objective of this essay is to reflect on what the specific sources could be for archeology in investigating these issues and what contribution our discipline can make in documenting and reconstructing these relationships and the dynamics of power starting from the traces of the structures used for localized production along the coasts and for coastal defence. These dynamics are still present today in these areas, from the perspective of patrimonialization, in which institutions of various types and different scales (European, national and local), intertwine, sometimes in a conflictual way, on different levels: environmental, political, economic and cultural.

**2483. FINDING THE SUBALTERNS IN SARDINIAN PREHISTORY: THE CASE STUDY OF MONTE CLARO**

**Contribution format:** Oral  
**Contribution authors:** Luca Lai (University of North Carolina at Charlotte)

Decolonial approaches have been used to interpret typically colonial conditions, in Sardinia typically times of intense culture contact that involved military and economic control based on any of the mainlands surrounding the island (e.g. Phoenician-Punic, Roman age, Iberian conquest in the late Middle Ages). In this contribution, the status and the issues revolving around identifying subalterns in prehistory is discussed, as a necessary condition to begin dismantling colonially-induced narratives and giving a voice to silenced individuals and groups. Archaeologically, establishing the existence of subaltern groups hinges on the reconstruction of social, cultural and political organization. We are far from unambiguously identifying inherited privilege or power in most periods, with some indicators that could be attributed to rank inequalities. Whereas much of the earlier 4,000 years after Neolithization have been commonly considered as fundamentally segmentary, village-based societies, some transition. may be correlated with changing relationships which we could interpret as approaching subalternity. A particularly underexplored period is the Late Copper Age Monte Claro phase (~2700-2350 BC). The presence of stone architecture and a few, outstanding ceremonial sites seems to point to some kind of organizational complexity, in contrast with the lack of radical disparities in residential architecture. The technological and stylistic discontinuity it represents has led to consider the likelihood of immigration vs. ethnogenesis, and their effects in terms of relationships with ‘other’ groups. The burial record provides clues from key individual depositions, which are contrasted with collective burials and the countless cave contexts of uncertain interpretation. Isotopic and genetic data are also considered, to reach a tentative conclusion that the Monte Claro period may have represented greater inequality, possibly on the basis of increased mobility and conflict, and therefore we can suggest the case for subalterns, whose life experiences need to be characterized Gramsci sensu.

**709. MONTE PRAMA: NURAGIC RESPONSES TO A COLONIAL APPROACH**

**Contribution format:** Oral  
**Contribution authors:** Laura Pisanu (University of Melbourne)

The Iron Age Mediterranean is seen as a vibrant melting pot where multiple societies engaged in cultural and economic exchanges. Through economic and cultural networks, products and ideas were traded, consumed, and

shared by each society according to their own habits and their re-elaboration of external, cultural influences. Despite the dynamic nature of the Iron Age connectivity, early scholarship has considered Greeks, Phoenicians and Etruscans as the groups that dominated the economic exchanges and informed the social and cultural trends that emerged. In this light, transformations in Iron Age Sardinia have been linked to the presence of Phoenicians. They would have propitiated technological, social and artistic developments of Nuragic communities since the pre-colonization phase (9th - 8th century BC), even though the archaeological evidence does not support a stable presence of Phoenicians before the 7th century BC. This perspective has been used to describe Monte Prama. a Nuragic necropolis where the use of individual tombs and the presence of statues represented a break with the burial practices previously used by Nuragic people. Thus, Monte Prama has been described as the outcome of either external initiatives or hybrid practices between Phoenicians and the local Nuragic groups that suited the new colonial model represented by the foundation of the Phoenician city of Tharros. Moving beyond a colonial approach, this paper discusses Monte Prama and its statuary as the result of the Nuragic active participation in the creation and shaping of Mediterranean networks. Using the lens of globalisation, changes and new expression of Nuragic cultural identity will be explained as local responses to a more intense maritime connectivity rather than a Nuragic passive acquisition of external trends or hybrid practices happening on a colonial ground.

**2495. ALLUMINIUM FACTORIES AND LUXURIOUS VILLAS: DECOLONISING SARDINIA’S PRESENT FROM ITS COLONIAL PAST**

**Contribution format:** Oral  
**Contribution authors:** Mauro Puddu (University for Foreigners of Siena)

For 19th-and-20th-century European travelers like Gaston Vuiller and John Warre Tyndale, Sardinia was a forgotten, unconquered, and peripheral place. For D.H. Lawrence, a land with “no history, no race, no offering,” one that lay “outside the circuit of civilization.” While these depictions echo broader colonialist and primitivist discourses—akin to those dismantled by Lévi-Strauss’ *Tristes Tropiques*—they also emerge from a much longer history of colonial frameworks. From Cicero’s portrayal of Sardinians as inherently foreign and enslaveable in the 1st century BCE, Sardinia has been persistently cast as the European other. These reiterated narratives have shaped also the material realities of life on the island today: in the *Avanti* (14th April 1919), Antonio Gramsci reminded how Sardinians were heavily colonised, their “bodies were marked by the ferocious labour to which they were forced as young kids by vile and ruthless exploitation”. In contrast, Genovese songwriter Fabrizio De André, reflecting on his own experience of being kidnapped in Sardinia in 1979, wrote that “life in Sardinia is perhaps the best that a human being can wish to live.” This paradox—between exoticized ideal and colonial erasure—defines the lived experience of many Sardinians today. While the island is hyper-visible in international tourism discourse, its people remain structurally marginalized, with limited political representation and chronic underinvestment in healthcare. This paper examines the material consequences of Sardinia’s colonial history through its landscapes of exploitation and exclusion—from the aluminum factories dominating the southwest coast to the elite villas punctuating the northeast. It interrogates how colonial frameworks still shape Sardinian identity, while amplifying the silenced voices of its indigenous and migrant communities. Henceforth, it calls for a decolonial reimagining of its history—one that recognizes the island not as a peripheral object of imagination but as a praxis for decolonizing European alternative historical narratives.

**229 CORES-ON-FLAKES DURING THE MIDDLE PALAEOLITHIC AND MIDDLE STONE AGE: TECHNOLOGY, RAW MATERIALS ECONOMY AND/OR FUNCTIONAL PURPOSES**

**Session theme:** 1. On artefacts and beyond  
**Session format:** Session with keynote presentation  
**Session keywords:** Cores-on-Flakes. Middle Stone Age, Ramification, Integrative Strategy, Recycling, Economy. Middle Palaeolithic & Middle Stone Age  
**Session organisers:** Cyrielle Mathias (Umr 7194 - Histoire Naturelle de l’Homme préhistorique, UPVD | Centre de Recherche français à Jérusalem) – Viola Schmid (Austrian Archaeological Institute, Austrian Academy of Sciences)

**SESSION ABSTRACT**

The use of flakes as blanks dedicated for the reduction as cores to produce small elements is recognised as a significant technical choice and testifies to innovative behaviours in the Middle Palaeolithic and Middle Stone Age. Various strategies exist, with different concepts, methods, and techniques of blank production (e.g., Kombewa, Nahr Ibrahim, Kostienki, le Pucheuil, and even carinated burin-like). Some methods serve distinct production goals, such as Kombewa, which can yield both large flakes for shaping Large Cutting Tools (e.g., cleavers,



bifaces) and small blanks with specific morphological features for direct use. The selection of debitage products may reflect an economic strategy, adaptation to the local mineral environment, or a specific functional purpose. This selection process has been linked to key concepts such as recycling, ramification (or branching economic strategy; Bourguignon et al., 2004), integrative strategy (Mathias & Bourguignon 2020), and the miniaturisation of production. In this session, we aim to discuss and compare this technical choice by situating it within different geographical, temporal and cultural contexts of the Middle Stone Age and Middle Palaeolithic. Case studies employing a technological, techno-economic, techno-functional, and functional approach are welcome. We additionally welcome contributions involving any experimental approach to these research topics.

CONTRIBUTION ABSTRACTS

223. KEYNOTE: BRANCHING STRUCTURES OF QUINA-TYPE MOUSTERIAN: AN INTEGRATED AND POLY-MORPHIC TECHNOLOGICAL AND ECONOMIC STRATEGY

**Contribution format:** Oral  
**Contribution authors:** Laurence Bourguignon (Inrap | UMR 7041 ArScAn / AnTET,)

Over the past two decades, studies on Mousterian industries have highlighted the development of « chaînes opératoires ramifiées », or non-linear knapping strategies. These processes, common in the Middle Paleolithic, involve exploiting flakes from various systems (Levallois, Quina, Discoid) to produce specific morphotypes such as short, wide, or lamellar flakes. These chaînes, widespread in Europe, are characterized by the sequential management of activities aimed at precise technical objectives, often exported, reflecting a pursuit of standardization and functional complementarity. In Quina industries, these branching structures are particularly diverse, explaining the variability of assemblages and diagnostic challenges. Three main types are identified: A, which exclusively exploits the lower surface of a core flake; B, which primarily uses the upper surface (sometimes incorporating the lower surface), including processes such as Clactonian notching; and C, involving plan-convex shaped flakes described as interactive chaînes opératoires. These structures can coexist on the same matrix, often bifacial and plan-convex, providing both versatility and specialization, such as for butchery tasks. Quina matrix combine ergonomics, productivity, and longevity, reflecting sophisticated technology. Their flexibility allows adaptation to various contexts, enhancing mobility and efficiency while maintaining centralized organization. Far from a simple recycling economy, these practices represent an advanced circular economy and optimized resource and territory management. They reflect a complex cultural and social identity marked by exchanges of ideas and objects despite local variations. Quina industries thus exemplify an integrated, polymorphic, and emblematic technological and economic strategy of the Middle Paleolithic.

191. BETWEEN CORES-ON-FLAKES AND SPLITS: MANAGING QUARTZITES AND FLINTS IN THE EARLY MIDDLE PALAEOLITHIC LEVELS OF COUPE-GORGE CAVE (HAUTE-GARONNE, FRANCE)

**Contribution format:** Oral  
**Contribution authors:** Cyrielle Mathias (UMR 7194 - Histoire Naturelle des Humanités préhistoriques, UPVD | Centre de Recherche français à Jérusalem) – Amélie Vialet (UMR 7194 - Histoire Naturelle des Humanités préhistoriques, MNHN)

Coupe-Gorge Cave is a significant site for the Lower and Middle Palaeolithic periods in the French Pyrenees. Originally excavated by L. Méroc in the 1950s, the site revealed a stratigraphic sequence comprising several layers containing faunal and human remains associated with lithics, in an area where few cave sites are preserved. A new research programme (dir. by A. Vialet), has recontextualised the past hominin occupations and led to the re-examination of the lithic collection. Most of the sequence at Coupe-Gorge can be attributed to the early Middle Palaeolithic. The primary raw materials used are quartzite pebbles and cobbles, along with approximately 30% flints, depending on the layer. The flints are predominantly local varieties from the Danian Formation. Technological analysis indicates that the specific characteristics of these materials, such as their initial size and shape, inclusions, and the thickness of the alteration cortex, influenced knapping methods and economic strategies. Cores-on-Flakes and split cobbles/pebbles were thus frequently used as blanks at the site for various purposes. In this paper, we present the different chaînes opératoires involving flake-blanks or splits and their objectives for both flints and quartzites. These strategies are examined diachronically across the seven archaeological units from the early Middle Palaeolithic, highlighting their remarkable flexibility.

661. TECHNOLOGICAL VARIABILITY IN CORE-ON-FLAKE STRATEGIES AT EL ESQUILLEU CAVE DURING THE MIDDLE PALEOLITHIC

**Contribution format:** Oral  
**Contribution authors:** Martín Julio García-Natale (Departamento de Prehistoria y Arqueología, Universidad Autónoma de Madrid) – Antonio Tarriño-Vinagre (Departamento de Geografía,

Prehistoria y Arqueología. Universidad del País Vasco) – Javier Baena-Preysler (Departamento de Prehistoria y Arqueología, Universidad Autónoma de Madrid)

The El Esquilleu Cave is a context rich in archaeological material, yielding more than thirty archaeological layers that span from the late MIS4 to throughout MIS3. Its record is particularly valuable for understanding the variability in the technological behaviours of the last Neanderthals during the Late Middle Palaeolithic of Northern Iberia, including their raw material management strategies and ways of life in a mountainous context. Here, we present a preliminary study aimed at identifying differences in the core-on-flake strategies within the flint assemblage of the site. We studied flint assemblage of levels from VI to XXXV. In this sequence, flint is scarce, and its outcrops are found no closer than 40 km from the site. This fact adds special interest to the management of non-local materials, particularly their roles, how they are perceived and treated in contrast to local and semi-local raw materials, among other factors. The long sequence of layers at El Esquilleu also allows us to gain a broad view of these processes over several thousand years. At El Esquilleu, we find several different levels associated with Levallois, Discoidal, Quina, and even Laminar lithic techno-complexes (LTC). Differences in specific technical choices within Core-on-Flake technology have also been identified, providing valuable insights into the definition of continuity and discontinuity events, as well as the inherent variability in Neanderthal technological behaviours.

755. THE ROUTE DE BRIAL SITE (SOUTHWEST FRANCE): THE USE OF FLAKING BLANKS FOR PRODUCTION IN A QUARTZ/QUARTZITE CONTEXT

**Contribution format:** Oral  
**Contribution authors:** Clément De Cara (Paléotime - LAMPEA (UMR 7269)) – Cyril Viallet (Paléotime - HNHP (UMR 7194))

The Route de Brial site (Montbartier, France) was recently explored as part of a rescue excavation. Covering an area of 6 hectares, 27,000 lithic artifacts document occupations from a recent Middle Paleolithic phase (probably MIS 4). They took place in a region where the main mineral resources are quartz and quartzite, available as pebbles and cobbles in the alluvial deposits of the Tarn and Garonne rivers. This petrographic component dominates the lithic production of Neanderthal knappers. The pebbles/cobbles are used in a variety of chaînes opératoires: shaping (with several types of LCT) as well as debitage, following Levallois and Discoid concepts, and other methods to produce more or less standardized flakes. However, the blanks selected for shaping and debitage are also flakes or splits. The production of these blanks may involve the use of an anvil. For shaping, cleavers are produced on large quartzite flakes from the Garonne alluvium. This may also be the case for some bifaces. For debitage, the use of flakes or splits as blanks creates asymmetrical volumes. The underside of splits enables the production of flakes with a biconvex cross-section by uni- or bipolar, orthogonal and centripetal methods. The plano-convex cross-section of splits leads to production at the expense of the flat face, generally centripetal, enabling several flakes to be obtained. Whatever the case, the recurrent use of blanks in the form of flakes or splits shows that this is an initialization phase in several chaînes opératoires, rather than an opportunistic behavior.

2037. THE SMALLER THE BETTER – CORES-ON-FLAKES IN THE SOUTH AFRICAN MIDDLE STONE AGE (MSA) DURING MARINE ISOTOPE STAGE 5

**Contribution format:** Oral  
**Contribution authors:** Viola Schmid (Austrian Archaeological Institute, Austrian Academy of Sciences | Human Evolution and Archaeological Sciences (HEAS), University of Vienna | University of the Witwatersrand)

The Middle Stone Age (MSA) of Marine Isotope Stage (MIS) 5 in southern Africa is associated with the appearance of distinct new adaptations, tool types, subsistence patterns, and the use of symbols. This most likely provided a beneficial foundation for technological experimentation as well as the development and diffusion of innovations. However, until recently, research has focused on sub-stages of the MSA considered more innovative, such as the Still Bay and Howiesons Poort techno-complexes, or on specific regions, such as the Western and Eastern Cape Provinces. In the framework of the project “Time of essential changes in human history (TECH)”, three sites, Bushman Rock Shelter, Rose Cottage Cave and Sibhudu Cave that are located in different biomes and previously understudied regions, are analysed. The research aims to draw conclusions about human behaviours during MIS 5, including technology, techno-economy and land use, as well as the occurrence of behavioural novelties, group networking and knowledge transfer. Interestingly, the technological study following the chaîne opératoire approach revealed that the technical system of all three assemblages encompasses cores-on-flakes. However, the toolmakers used diverse strategies, and different intentions concerning either functional or operational aspects may have determined the outcome. In comparison with other MSA sites of MIS 5, the data underpin the eagerness of past societies to experiment as well as to express creativity and thereby finding new solutions for their technological needs.



2406. VARIABILITY AND RECYCLING PRACTICES IN THE MOUSTERIAN EBRO VALLEY: CORES-ON-FLAKES IN THE ASSEMBLAGES OF ROCA SAN MIGUEL AND GABASA SITES

**Contribution format:** Poster  
**Contribution authors:** Ekaterina Shveygert (Universidad de Zaragoza | Instituto Universitario de Investigación en Ciencias Ambientales de Aragón (IUCA) | Grupo de Investigación Primeros pobladores y patrimonio arqueológico del Valle del Ebro (P3A))

Neanderthal technological behaviour is highly diverse, even within the same group, not to mention the variations among different group occupations. This diversity is influenced by the availability and selection of raw materials, which are linked to landscape characteristics, resource exploitation strategies, knowledge and exploration of the territory, site function, and consequently, the domestic activities for which the tools were produced. This variability is reflected in the lithic material found at archaeological sites, which is often challenging to assign to a single technological group, as it may combine characteristics of multiple traditions. Examples of this include retouched tools made on cores or, of course, cores-on-flakes. For this study, we have selected two significant Mousterian sites from the Pre-Pyrenean region in the province of Huesca, Spain: Roca San Miguel (MLP level) and Gabasa (levels f and g). The selected levels from both sites date back to MIS 6, which allows us to explore possible responses to climatic conditions and establish potential parallels. However, the domestic activities carried out at these sites differ, as their functions were distinct: Gabasa Cave is interpreted as a site with short-term occupations related to hunting activities, whereas Roca San Miguel presents evidence of more continuous occupations. Both lithic assemblages contain evidence of recycling behaviour, including Kombewa flakes and cores, cores-on-flakes, and retouched tools made on cores. The analysis and interpretation of these materials are the focus of this study, aiming not only to evaluate their presence at the site but also to reconstruct the occupational dynamics.

230 WHAT A LOAD OF RUBBISH! CHALLENGES AND POSSIBILITIES ON LARGE URBAN ARCHAEOLOGICAL EXCAVATIONS

**Session theme:** 1. On artefacts and beyond  
**Session format:** Discussion session  
**Session keywords:** Large-scale urban sites, Find strategies, Metal detecting, Method development, Finds assemblages  
**Session organisers:** Stuart Whatley (Museum of Copenhagen) – Georg Haggren (University of Turku) – Karen Therkelsen (Museum of Copenhagen)  
**Session discussant:** Simone Mayer (Museum of Copenhagen)

SESSION ABSTRACT

Large-scale urban excavations often produce huge amounts of finds which causes significant challenges but at the same time offers considerable research potential. Whilst the 2023 EAA conference session “All these finds – Challenges and possibilities on large urban archaeological excavations” addressed problems with large scale urban excavations in Northwest Europe, urban excavations have become larger whilst new technologies have made it possible to analyze smaller details such as aDNA and pathogens. New approaches in sampling, 3Ding of finds and structures and new excavation techniques over the last few years have led to the need to address this question again, but in a wider scale from all over Europe. The recent excavations of an Early Modern rubbish dump in Frederiksstadén, Copenhagen led to many challenges in methodology during the excavation. Apart from established fieldwork techniques, new procedures linked to a strategy of collecting big bags of soil led to largescale dry sieving with metal detectors and wet sieving alongside hand collection of finds. The focus will again be related to finds from large rubbish dumps, moat fills, industrial zones or land reclamation places, areas used to redeposit waste from the city. This session aims to discuss strategies related to excavation, sieving, and the recording and collection of finds.

- What should be collected and why, what should be left on site and how should we approach on site conservation.
- Should finds be sorted on site or should this be done in the post excavation phase?
- How important is metal detecting in the procedure, and should it become an important aspect of most archaeological strategies.
- Finally, how do we integrate new technology such as drones and other aspects of photography.

This session welcomes papers on excavation and finds strategies inviting papers that can discuss both in-situ and redeposited materials.

CONTRIBUTION ABSTRACTS

184. LANDFILL LEGACY: EXCAVATING AND INVESTIGATING HISTORICAL WASTE IN FREDERIKSSTADEN, COPENHAGEN

**Contribution format:** Oral  
**Contribution authors:** Karen Therkelsen – Simone Mayer (Museum of Copenhagen)

This paper presents the preliminary findings from a groundbreaking archaeological excavation conducted in 2024 at Amaliegade 44 in the historic district of Frederiksstadén, Copenhagen. The site is situated in a coastal area. It was used as a landfill from approximately 1650 to 1750 and comprises waste from Copenhagen’s residents, providing valuable insights into historical waste management practices in the region. One of the major challenges of the excavation was the need to remove all soil to accommodate upcoming construction. This process involved excavating and transporting the enormous amount of 4.300 cubic meters of soil in 6.000 bigbags to a separate site, where the soil is being systematically examined – a novel scale for Danish archaeology. The paper will focus on the methodologies designed to maximize efficiency on site and during post-excavation with the aim of reviewing the contents of the bigbags by the end of 2026. As the thick layers of waste were rich in exceptionally well-preserved and diverse artefacts, we anticipate the unprecedented amount of approximately half a million objects! In particular, the vast amount of various leather and textiles must be emphasized for their excellent preservation and textiles will serve as an example for the research potential of the material. Preliminary results provide insights into the nuances of everyday life, consumption patterns, recycling, diet, craftsmanship, and globalization in 18th-century Copenhagen. By examining fabric types and weaving patterns, we gain valuable insights into the fashion, gender roles, trade networks, and broader social and economic contexts of the time.

1473. MEDIEVAL AND EARLY MODERN GLASS FROM SLOTTSFJÄRDEN IN KALMAR (SWEDEN). A FINDS ASSEMBLAGE FROM EXCAVATIONS MADE DURING THE GREAT DEPRESSION

**Contribution format:** Oral  
**Contribution authors:** Georg Haggren (University of Turku | University of Helsinki)

During the great economic depression in the 1930s the town of Kalmar (Sweden) started a large job creation project. In 1932 to 1934 the seabed of the Bay of Slottsfjärden in the front of the medieval castle of Kalmar and the former old town was dredged. An area of about 300 x 200 meters was cut off with dams from the surrounding sea and drained so that it was possible to carry out the excavation of the area by methods used on dry land. A rail road was built through the area to make it possible to transport about 100 000 cubic meters of mud from the area. This excavation resulted a huge finds material consisting of e.g. 20 ship and boat wrecks. However, the excavation is probably best known for its large ceramic material consisting of fragments of about 31 200 vessels from the 12th to 17th century. The number includes 800 whole or almost whole vessels put together from the fragments. In contrary to many other early excavations also fragments of glass were collected from the bottom of Slottsfjärden. The most famous of the glass finds is a Bohemian pruned beaker dating to the century. The rest of the glass finds have never been discussed in detail. The aim of this paper is to analyze the glass assemblage from Slottsfjärden and place it to a wider European context. Today, it is also possible to compare these early finds with a large assemblage resulted during a large excavation made within the area of the old town of Kalmar (Arkeologerna/Swedish National Historical Museums).

599. LANDFILL OR VERSATILE SPACE? AN ALTERNATIVE APPROACH TO “EMPTY” SPACES

**Contribution format:** Oral  
**Contribution authors:** Kristine Haugan (Museum of Cultural History, University of Oslo)

This paper examines the often overlooked empty spaces within urban townscapes that are commonly interpreted as landfills or waste dumps. By focusing on the medieval town of Oslo, I use an undeveloped area south of the Bishop’s Road booming in high-status artefacts as an example of how spaces lacking permanent structures—often labeled as “empty” or “open” in medieval townscapes—are frequently dismissed or downplayed in the documentation. Consequently, such spaces are de-prioritized in research. In this paper, I propose an alternative approach to understanding empty spaces, building on recent research. I argue that many urban spaces without permanent structures offer valuable insights into activities that leave minimal archaeological traces, and that these activities can be detected through their versatility and seasonal nature. These spaces can reflect dynamic processes like social gatherings, trade, gardening, and animal movements that enliven urban life. In conclusion, I emphasize that future excavations should employ comprehensive sampling strategies to uncover the multifaceted roles these spaces play in urban society.



1792. ETHICAL DILEMMAS IN RELATION TO DESTRUCTIVE ANALYSIS OF HUMAN REMAINS

**Contribution format:** Poster  
**Contribution authors:** Tanja Madsen (ADBOU: Unit of Anthropology Department of Forensic Medicine, University of Southern Denmark)

Human remains are a unique and irreplaceable resource that can offer contemporary researchers exclusive insights into past lives. In the pursuit of new knowledge, scientific analyses have proven to be effective tools. However, most of these tests are destructive, involving invasive procedures that result in the destruction of human remains. Both during the preparation process and in the sampling itself, the ethical considerations must be carefully weighed against the potential outcomes. When can sampling truly be justified? Is a laboratory result more valuable than compromising the preservation of cultural heritage. The purpose of this poster is to guide the reader on a journey to Denmark, where legislation and guidelines regulate archaeological excavations and the treatment of finds, but where the approach to sampling and ethics is left to individual conscience. The poster aims to offer insight into the challenges and considerations I encounter when sampling human remains at ADBOU -Unit of Anthropology Department of Forensic Medicine, University of Southern Denmark.

232 OTTOMAN ARCHAEOLOGY IN EUROPE: ALONG AND ACROSS THE DANUBE

**Session theme:** 8. Along and across the Danube!  
**Session format:** Regular session  
**Session keywords:** Ottoman Empire, Balkans, Ottoman archaeology, Ottoman heritage, Ottomans in Europe  
**Session organisers:** Tünde Komori (Hungarian National Museum) – Veronika Nikolaeva Nikolova (National Archaeological Institute with Museum, Bulgarian Academy of Sciences)

SESSION ABSTRACT

Following the conquest of Bulgaria by the Ottomans at the end of the 14th century, the Danube River became one of the most vital areas for Ottoman political, cultural, and economic life until the end of the 19th century. This period of approximately five hundred years divided European history into two different worlds and led to the emergence of two distinct material cultural environments: European and Ottoman. Although the symbolic area of this division and interaction was the Danube River and its basin, this region also served as a venue for an intertwined cultural hub, where the two different cultures met and fused with each other. The diversity of Ottoman Europe and the five-hundred-year heritage produced an abundance of Ottoman-period archaeological material in this region, being witness to the intertwined past of Europe and the Ottoman Empire. The systematic excavation and study of this archaeological material started emerging in the past two decades, making the field of Ottoman archaeology young compared to other periods in Europe. Dialogue among scholars and archaeologists focusing on Ottoman archaeological heritage has recently started, and this session aims at continuing and extending this dialogue. We are inviting papers from Europe discussing Ottoman archaeological heritage in one of but not limited to the topics below. Material culture interactions between Europe and the Ottoman Empire Ottoman settlements and archaeology along and across the Danube River Cultural encounters and traffic routes in the Ottoman Europe Commercial activities and material exchange between the Ottoman Empire and Western Europe Borderlands, conflicts, and interactions Development of Ottoman archaeology in post-Ottoman Europe Ottoman-period material culture in museum storages and its past, present, and future Ottoman architecture in modern context: the use and preservation of Ottoman-period buildings in post-Ottoman Europe.

CONTRIBUTION ABSTRACTS

853. RUN, THE TURKS ARE COMING! OVERVIEW OF ARCHAEOLOGICALLY INVESTIGATED SITES FROM THE TIME OF THE OTTOMAN INCURSIONS IN SLOVENIA

**Contribution format:** Oral  
**Contribution authors:** Mateja Ravnik (Institute for the Protection of Cultural Heritage of Slovenia)

The multi-level defence that the Inner Austrian provinces organized against the Turkish incursions was rather specific, ranging from simple refuges provided by rock shelters and forests, which are difficult to document with the use of the archaeological method and place (strictly) in the time of the Ottoman incursions, to the construction of complex strongholds, led by the state and the nobility. No less specific was the nature of the Ottoman incursions, which shook the cumbersome medieval system of warfare and defence at its very foundations. For this reason, the aim of the contribution at hand is not so much to list the locations of uncovered archaeological remains that may be associated with those turbulent times as it is to set forth reflections, questions, and dilemmas that are raised in discussing this topic—that is, from identifying and interpreting archaeological records,

interdisciplinary integration of architecture, art history, ethnology, history, and archival studies (above all to study Ottoman archival sources), to the absence of Ottoman materials and remains, which is indeed striking, given the high number and frequency of their attacks. Surpassing the mere attempt at surveying locations, the contribution highlights challenges and raises the question of not only how to discuss archaeological remains but also how to develop an integral, interdisciplinary approach to interpreting them to improve the understanding of the developments that took place in that period.

1522. “...CHURCHES WHERE SACRIFICES WERE OFFERED TO GOD WERE TURNED INTO BARNs FOR CATTLE...”. ARCHEOLOGICAL TRACES OF OTTOMAN ERA IN CROATIA

**Contribution format:** Oral  
**Contribution authors:** Andrej Janeš (Croatian Conservation Institute)

The Ottoman conquest of the Balkan peninsula is held, in popular belief and historiography, as a turning point of the regional, but also, wider political, social and cultural landscape. It was also held as a devastating blow to the Christian society of the region, including population displacement and indirectly the destruction of the material remains of the “old” culture. These actions were mostly held as a direct point in Croatian archaeological research as the origin of archaeological sites of former medieval settlements, castles, monasteries and churches, on the Ottoman occupied territories of present-day Croatia. This paradigm caused a popular theory among archeologists that all sites with medieval finds had to be abandoned by the second quarter of the 16th century. Modern day archaeological research, mostly due to rescue excavations, brought to light new data that shed new light on the post-Mohacs era, the time of Ottoman conquest and rule in the regions of Slavonia, Dalmatia and other Croatian regions. This paper will present new data from archaeological research in Croatia including settlements that flourished under Ottoman rule, cemeteries used by Christian communities during this period showing no disruption in their use, mostly on the territory of Slavonia, spanning from the late 15th to the 17th century. Archeological excavations and surveys unearthed remains of Ottoman architecture, as the mosques, hammams, türbes, defensive towers in the cases of Osijek and Gorjani (Slavonia), Ilok (Syrmia) and Nadin (Dalmatia). In some cases, new traditions arose, like the burials in mounds in the Dalmatian hinterlands, confirming the arrival of new populations. In the last twenty years Croatian archeology has made significant steps excavating ottoman era sites that will be presented here.

1476. THE HABITATION IN THE FORTIFICATION AND THE SUBURBS OF OTTOMAN TIMIȘOARA (ROMANIA). AN ARCHAEOLOGICAL AND HISTORICAL APPROACH

**Contribution format:** Oral  
**Contribution authors:** Andrei Stavila – Dorel Micle (West University of Timișoara | Interdisciplinary Research Center for Movable and Immoveable Archaeological Heritage “ArheoTim”) – Bogdan Craiovan (National Museum of Banat in Timișoara | Interdisciplinary Research Center for Movable and Immoveable Archaeological Heritage “ArheoTim”)– Ana-Maria Bogdan(West University of Timișoara)

Starting in 2014, the modernization and rapid development of Timișoara have provided valuable insights into the city’s habitation from the 16th century to the early 18th century. Having in mind Heinrich Ottendorf’s (2006) narration, which states that “only the Ottomans lived inside the city walls, while the Christians inhabited the suburbs,” this paper aims to offer a comparative analysis of the intra- and extra muros areas, focusing on the residential structures and their outbuildings. To highlight any potential differences, we will draw upon archaeological findings, narrations from foreign travelers, reports from Habsburg envoys in Banat, and period maps. The decline of Ottoman administration and of the city itself begins in the late summer of 1716, when Timișoara was preparing to defend itself against the Habsburg imperial armies (Hirsch 2021). The first area to be affected was the extra muros housing in the Palanca Mare suburb. The disruptions caused by the siege of Timișoara in the northern part of the city, along with the changes that followed, have been documented in recent years from an archaeological standpoint—these aspects will be addressed in the concluding part of this paper.

2461. BRĂILA IN OTTOMAN AGE

**Contribution format:** Oral  
**Contribution authors:** Niculina Dinu (Braila Museum “Carol I”)

Brăila developed as a border town on the shore of Danube from the Middle Ages. Documentary is mentioned from 1368 but archaeological evidence is earlier. Its development is closed by the two main international routes that link the west and east. When the Ottomans wanted to close Danube navigation, they occupied this town and part of the surrounding territory sometime in 1538-1540. So that part, which was a Wallachian territory, became the border fortress of the Ottoman Empire, from the middle of 16th century to the beginning of 19th century. Historical information is channeled into the political and military situation in the area and information about the



population and economic activity is rarely found in the writings of travelers or official documents. That activity could be documented by archaeological discoveries. These show us certain patterns of residential concentration (houses, workshops or shacks) of religious spaces (place of worship or cemetery). Archaeology can only offer a glimpse into the daily life of a war zone, such as Brăila fortress was: houses and streets, trade activity of city and harbor (main area for international and regional/ local trade). The transformations of the 19th century leave us with a fragmentary Ottoman city, whose history is completed by the household pits discovered during the architectural remodeling of the old fortress (buildings, streets, former industrial spaces in the port area).

**144. HIDDEN HISTORY UNDER THE ROMANIAN GROUND: TRACES OF OTTOMAN HABITATION IN TIMIȘOARA (1552-1716)**

**Contribution format:** Oral  
**Contribution authors:** Adriana Gaspar („Vasile Pârvan” Institute of Archaeology, Romanian Academy)

Archaeological research campaigns that took place in the historic center of Timișoara (Romania) in the last two decades have brought to light several structures that belonged to the Ottoman fortress (1552-1716). Among the discoveries that belonged to the Ottoman city were also parts of dwelling, built entirely of wood. These residential structures, oriented according to the street network, were provided with one or more rooms, often equipped with cellars - used for storing food, household annexes - with various roles in domestic life, but also supply pits - for storing and managing food resources. The houses were built using two distinct construction techniques: foundations were made on groups of wooden pillars and foundations in which rows of wooden pillars were driven into trenches. The presentation discusses the details regarding the architecture of these dwellings, their significance in the urban context of the era, and their implications for understanding daily life in the Ottoman fortress.

**2484. FACING MECCA: MOSQUES AND THE STATE OF OTTOMAN HERITAGE IN BULGARIA**

**Contribution format:** Oral  
**Contribution authors:** Veronika Nikolova (National Archaeological Museum of the Bulgarian Academy of Sciences)

Bulgaria fell under Ottoman rule in 1396 and remained so for a period of almost 500 years until 1878. Situated in the middle of the Balkan peninsula the Bulgarian lands became very important for the Ottomans. The cities gradually gained an Ottoman appearance – the earliest Ottoman buildings date back to the end of the 14th c. Travelers who passed through these lands testify to numerous mosques, caravanserais, hammams and other buildings renowned for their architectural and artistic qualities. After the Liberation of Bulgaria and especially during the communist period some Ottoman monuments were transformed into museums, churches or galleries, while others were destroyed or abandoned. Even nowadays, the methods by which these monuments are managed have no. been fully developed yet. This is both due to the ambivalence of the state in relation to these monuments and to the collective memory that often plays a role in their management. The aim of this study is to present the relation of the Bulgarian state and community towards the mosques that have survived to this day on the territory of Bulgaria from the Ottoman period. Several mosques will be presented, illustrating different ways of how Bulgaria is dealing with this heritage. The first group will include mosques that are now renovated, open to the public and are still places of worship such as Eski mosque (Yambol) and Tombul mosque (Shumen). Other examples like Buyuk mosque (Sofia), Eski mosque (Stara Zagora) and the recently renovated mosque in Karlovo that are currently museums will also be presented as another functionality of these buildings. Mosques that, for various reasons, are not maintained and self-destruct will illustrate the challenges the Bulgarian society faces regarding the management of their Ottoman heritage.

**1305. EMBODYING CONQUEST: COMMEMORATING THE BATTLE OF KOSOVE POLE IN THE OTTOMAN AGE**

**Contribution format:** Oral  
**Contribution authors:** Petar Parvanov (National Archaeological Institute with Museum)

In the words of Noel Malcolm everything but the basic facts about the battle of Kosovo (AD1389) is uncertain and yet this remains one of the most critical episodes in the rise of the Ottoman empire. The special significance of the battle and its location in the Serbian national myth and identity is well known. Despite the tactical stalemate and the deaths of both leaders, Prince Lazar and Sultan Murad, the outcome of the battle favored the Ottomans in the long term. Their control over the area is manifested in the interconnected memorial and religious landscape. This presentation will elaborate on the Ottoman heritage related to the battle of Kosovo pole and the special place of sultan Murad in the materialization of this cultural narrative. At first glance, the body of the sultan is venerated and manipulated according to the Ottoman funerary custom for the creation of his türbe in the outskirts of Mazgit. However, this tomb is at the center of complex memorial network encompassing architectural monuments in Bursa, Pristina, and the battlefield itself. As elsewhere in the Balkans, these buildings

are considered the earliest known examples of Ottoman architecture in the region. The symbolic geography is further emphasized by the journey of the royal corpse back to the core Ottoman lands combining warfare and religion in an intentional political display similar to some funerary performance in medieval European practice. Its effectiveness is best demonstrated by the memorial transformations of this conflict heritage starting already in the fifteenth century.

**2378. ARCHAEOLOGICAL AND ANTHROPOLOGICAL DATA ON THE CHRISTIAN NECROPOLIS AT THE SITE “TRAYANOVI VRATA” (15-16 C.)**

**Contribution format:** Oral  
**Contribution authors:** Vladislav Todorov – Nadezhda Atanasova (Institute of Experimental Morphology, Pathology and Anthropology with Museum (IEMPAM))

The aim of this report is to present the data from archaeological and anthropological investigation of the sit. “Trayanovi Vrata” pass, which is located in Sofia District. The name of the pass comes from the famous Trajan's Gate, which was erected in antiquity at this location. The main goal of the archaeological excavations, conducted in 2016, was to discover the ruins of the famous Trajan’s Arch. Nine boreholes were laid during the research. Architectural remains and part of a necropolis were registered in borehole No. 2. 15 burial structures were discovered with a total of 19 individuals of both sexes and of different ages identified. All of them were buried according to Christian custom, in a stretched position on their backs and heads oriented to the west some of the graves were disturbed secondarily, as a result of which human bone remains were registered and re-deposited on site. Based on the found ornaments, the necropolis is relatively dated to the 15th-16th century. A large part of the human bone remains are fragmented. In none of the cases are the skeletons completely represented. A completely preserved skull was found in only 1 case (grave No. 9). Of interest is grave No. 10, where bones of a fetus (9.5 – 10 lunar months of pregnancy) were identified, as well as graves No. 6 and 13 with the remains of babies under 1 year of age. The identification of cranial porous bone lesions in some of the buried adolescents and adults is indicative of the presence for anemic diseases in the studied population.

**485. WHAT’S ON THE PLATE. A ZOOARCHAEOLOGICAL PERSPECTIVE ON DIET AND ANIMAL USE IN OTTOMAN BELGRADE**

**Contribution format:** Oral  
**Contribution authors:** Simeun Srdanovic – Teodora Mladenović (University of Belgrade - Faculty of Philosophy) – Milorad Ignjatović (Belgrade City Museum, Belgrade)

The archaeological site at the corner of Kosovska and Vojkoviće streets in Belgrade was excavated in 2023 during protective research conducted by the Belgrade City Museum. On this occasion, alongside layers from antiquity, remains of structures from Ottoman-period Belgrade, dating to the early 17th century, were uncovered. A diverse assemblage of portable finds – including pottery, clay smoking pipes, and small metal objects – was unearthed within these structures. Notably, faunal remains were also identified, providing a rare and valuable insight into animal use and dietary practices during this period. The distribution of skeletal elements, butchery marks, and represented taxa suggest that these remains primarily derive from food consumption. The assemblage includes a variety of mammals, birds, fish, molluscs, and reptiles. Among mammals, domestic species predominate, particularly sheep, goats, and cattle, alongside additional finds of equids, dogs, pigs, and camels. Wild species, such as wild boar and roe deer, are present but scarce. Poultry is primarily represented by chicken, with occasional occurrences of geese. Aquatic resources include fish, notably carp and catfish, and freshwater mussels of the genus Unio. A single fragment of a turtle shell represents the only reptile specimen. Given the still-developing fields of Ottoman-period archaeology and zooarchaeology, and the scarcity of published faunal assemblages from the Balkans, this study represents a significant contribution to regional research. It offers insights into dietary habits and animal exploitation strategies within Belgrade and the northern parts of the Ottoman Empire.

**1612. OTTOMAN BUILDING ON A MEDIEVAL CASTLE WALL – THE CSÓKAKŐ MOSQUE IN THE MOSQUE ARCHITECTURE OF OTTOMAN HUNGARY**

**Contribution format:** Oral  
**Contribution authors:** Bianka Kovács (ELTE Research Centre for the Humanities, Institute of Archaeology, Budapest) – Gábor Hatházi (Ministry of Culture and Innovation (KIM)) – Ágnes Kolláth – Gyöngyi Kovács (ELTE Research Centre for the Humanities, Institute of Archaeology, Budapest)

The starting point for our presentation is the remains of a mosque built in the Ottoman-Turkish period. of Csókakő Castle near Székesfehérvár, the centre of the Central Transdanubian region. In the castle on a southern ridge of the Vértes Mountains, the mosque was built on a demolished section of the medieval castle wall. We will present



the written, pictorial and archaeological evidences for it, and then use examples from Balkan and Anatolian architecture to explore what it might once have looked like. The fate of the building after the Ottoman period and the current state of the ruins will also be discussed. The rest of the lecture will examine the place of the mosque in Ottoman mosque architecture in Hungary, and the extent to which its architectural characteristics were unique or generalizable in the period. In Ottoman Hungary, fundamentally new mosques were built mainly in towns and larger castles, less often in smaller places. The main types and the remains are illustrated with examples, including their 18th-20th-century building- and research history. The written and pictorial sources prove beyond doubt that there were mosques of simpler design in many smaller and larger settlements and castles. It was typical that a medieval church or a part (e.g. the sanctuary) of it was converted into a Muslim place of worship. In all respects, the remains of the mosque in Csókakő can be considered unique in the Hungarian monumental material. The location, small size and form of the mosque were determined by the circumstances of the fortress, but it was a typical Ottoman building with Ottoman architectural features.

1407. EARLY KÜTAHYA WARE IN OTTOMAN HUNGARY

**Contribution format:** Oral  
**Contribution authors:** Tünde Komori (Hungarian National Museum)

Kütahya coffee cups throughout the Ottoman empire are generally dated to the eighteenth century and later, primarily based on written evidence. At the same time, earlier production is sporadically mentioned in secondary literature, but no archaeological finds have been dated to earlier than the eighteenth century. Archaeological material, on the other hand, is only published from contexts that do not rule out earlier dating; still, all the material is dated after 1700. The proposed presentation discusses a find material of Kütahya ware, specifically coffee cups, presenting the preliminary results of the study of a large find material and their archaeological contexts. This study included the first-hand research of c. 1800 ceramic sherds of Chinese porcelain, Iznik and Kütahya ware, and Persian faience from eleven settlements in Hungary and Bulgaria, supplemented with the study of further c. 700 sherds in publication from other settlements in Romania and from Belgrade in Serbia. The primary goal of the presentation is to offer a revised typochronology of Kütahya ware, which also concerns previous typologies of the so-called Persian faience, as well as the widely used dating of certain Kütahya types in Turkish and Romanian publications. The presentation challenges partly the identification of certain types as Persian in the Hungarian material, and partly their dating to the eighteenth century, suggesting an earlier, seventeenth-century dating instead. The basis of the revised typochronology is the archaeological context of certain Kütahya types which suggest their earlier dating, especially in sites located in present-day Hungary, where Ottoman occupation ended by 1699.

1448. SPECIFICATION AND TYPOLOGY OF CHINESE EXPORT PORCELAIN FROM ARCHAEOLOGICAL SITES IN CRISTIAN EUROPE AND THE FORMER OTTOMAN EMPIRE

**Contribution format:** Oral  
**Contribution authors:** Agnieszka Pudlis (Archeological Museum in Gdańsk)

Chinese porcelain is found in several European and extra-European sites. It is considered that the production dedicated to Europe was different in many details from the production dedicated to the Eastern markets, including the Ottoman Empire. In recent years, thanks to the interest dedicated to modern archaeology, the number of publications presenting ceramic finds from the post-Medieval period has grown. Among these objects are often found numerous fragments of Chinese porcelain dating from the 16th to the end of the 18th century. Belief that porcelains exported to Western Europe and the Ottoman Empire represented different typologies were made by examining the most important museum collections - including Topkapi Palace and other royal collections in Europe. In fact, there are a large number of pieces (vases, bowls, plates etc.) decorated with Arabic writings, or with typically Christian designs. Although the same considerations can be used for the most common porcelains, which more often ended up in ditches and other garbage dumps? Can we perhaps say that special production was reserved for courts and “individual” buyers, but did the “bourgeois” porcelains, used by corporations, monasteries or spread throughout the cities, represent similar or identical types in all the places examined? We want to deliberate it carefully, indicating some new lines of interpretation. In fact, in the Baltic Sea basin (Danzig, Copenhagen, Gotteborg etc.) there are found several pieces of Chinese porcelains, which may be similar to those found along the Danube.The decoration technologies (gilding, enamelling, engraving etc.) will be taken into consideration together with the iconographic subjects (character, floral motifs, religious etc.) and shapes. Presentation will be widely illustrated by images of Chinese porcelains found in various sites, many of which have not yet been published.

1661. BURIED HISTORIES: AN ANTHROPOLOGICAL EXPLORATION OF A LATE OTTOMAN CEMETERY FROM CONSTANȚA, ROMANIA

**Contribution format:** Poster  
**Contribution authors:** Andreea Toma – Elizabet. Craig-Atkins – Mirela Ivanova (School of History, Philosophy and Digital Humanities, University of Sheffield) – Gabriel Vasile – Raluca Dobrogeanu (Romanian Academy, “Vasile Pârvan” Institute of Archeology) – Constantin Băjenaru – Marius Lascu – Ingrid Petcu Levei (Muzeul de Istorie Națională și Arheologie, Constanța)

Between 2019 and 2020, an archaeological investigation was conducted in the Constanța–Boreal area to identify potential burial sites. This research led to the discovery of 314 graves within a Muslim cemetery near the former settlement of Palazu Mare, now incorporated into the Constanța district in Dobrogea, southeastern Romania. The Ottoman-period cemetery, situated on a locally significant hillock, has been radiocarbon dated to the 18th to 19th centuries. A detailed analysis of the graves revealed that all exhibited either a rectangular or oval shape, with a lateral niche excavated towards the southeast, a characteristic feature of Islamic burial traditions. Of the 314 graves documented, 292 individuals were subjected to anthropological examination. The primary objective of this study is to reconstruct the demographic profile, health status and lifestyles of the Ottoman population in Dobruja by analysing sex and age distribution using a combination of metric and non-metric anthropological methods and assess skeletal indicators that provide insights into overall health, disease prevalence, and physical activity. Special attention is given to dental and bone pathologies, which offer valuable evidence of dietary habits, nutritional deficiencies, and general well-being. Additionally, markers of biomechanical stress are analysed to infer repetitive physical activities, reflecting occupational patterns and daily life. The findings of this research contribute to a broader understanding of the social and biological characteristics of Ottoman-era populations in southeastern Romania. By integrating archaeological and bioanthropological data, this study enhances knowledge of historical demographic structures, health conditions, and cultural practices, offering a comprehensive perspective on the lived experiences of past communities in the region.

1732. BAKING BELLS ACROSS THE OTTOMAN PERIOD IN HUNGARY

**Contribution format:** Poster  
**Contribution authors:** Orsolya Zay (Institute of Hungarian Research)

The baking bells were widespread in the Carpathian Basin during several archaeological periods, but they almost completely disappeared from the culinary culture of the Hungarian Kingdom in the Middle Ages. Therefore, it is well-marked that they reappeared during the 16th and 17th centuries with the incoming Balkan population. In the summer of 2022, we conducted an archaeological excavation over more than 2000 square meters in the economic courtyard of the Archbishop’s Palace in Eger. The area of the courtyard has not been disturbed since the 18th century, except for a couple of pipelines, aside from the paving. A massive amount of ceramics, metal, stone, and organic remains - such as leather shoes or wooden structures - were uncovered in the muddy, damp soil, primarily from the Early Modern period. From one of the wicker-walled wells, which had been filled with garbage, distinctive Balkan ceramics - mainly cooking vessels and utensils - we discovered a nearly intact, robust baking bell with the signs of long utilization and renovation. The excavation which was located on the main street of Eger highlights through the well-preserved finds the multicultural relations that developed in the city during the 91 years of Ottoman rule. In addition, we had the opportunity to reconstruct and test the baking bell as a contemporary cooking tool within the framework of an experimental archaeology project.

233 IRON, POTTERY, QUERNSTONES: THE POLITICAL ECONOMY OF PRODUCTION AND TRADE IN THE EUROPEAN MIDDLE AGES

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** Political Economy, Medieval, Production, Trade, Elites, Hierarchies  
**Session organisers:** Michael Lebsak (Institute of Archaeology of the Czech Academy of Sciences Brno | Masaryk University Brno | Albert-Ludwigs University Freiburg) – Michal Hlavica (Institute of Archaeology of the Czech Academy of Sciences Brno) – Arne Kluge (Eberhard Karls University Tübingen) – Monika Kaminska (Independent)

SESSION ABSTRACT

This session explores the political and economic relationships between elite and non-elite actors in Medieval Europe (500–1500 AD), focusing on the production, distribution, and consumption of both mundane goods and



high-status valuables. Elites—such as monarchs, chiefs, and clergy—exerted significant influence on commodity flows through mechanisms such as land ownership, violent restrictions, and market bottlenecking, enabling them to shape both local economies and broader trade networks. Control over resources and labor allowed elites to sponsor production centres and regulate access to existential materials like iron, foodstuffs, salt and wood, while also ensuring that luxury items such as weapons and jewelry remained symbols of power and status. The impact of elite actors can be identified through archaeological and historical evidence indicating specialized production areas, elite-sponsored workshops, and controlled distribution channels. Elite-sponsored craftsmanship further illustrate how control over skilled labor was used to reinforce social hierarchies, as well as maintain economic and cultural dominance. Despite this, autonomy existed among non-elite producers and traders. Archaeological data, such as independent workshops and evidence of local exchange, suggest that artisans and merchants could operate independently, creating distribution systems outside elite oversight. These autonomous exchange activities reflect a negotiated space wherein non-elites could engage in both local and regional trade, contributing to a dynamic economy that extended beyond direct elite control. This session aims to contextualize these interactions and seeks to present recent interdisciplinary studies that can combine, for instance, archaeological, archaeometric, historical or economic anthropological studies to explore the dependencies and independencies in Medieval European economic systems. Through this approach, we seek to deepen the understanding of how elite influences intersected with the agency of producers and traders, thereby shaping the distribution and accessibility of both mundane commodities and valuables.

CONTRIBUTION ABSTRACTS

490. BEYOND ELITE DESPOTISM AND CONTROL: THE POLITICAL ECONOMY OF IRON PRODUCTION AND TRADE IN THE CENTRAL EUROPEAN EARLY MIDDLE AGES

**Contribution format:** Oral  
**Contribution authors:** Michael Lebsak (Institute of Archaeology of the Czech Academy of Sciences)

The rise of institutionalised power in the European Middle Ages was driven by efforts of aspiring elites to centralise authority, control military and economic resources, and legitimise hierarchical rule. Political economy, drawing from Marx’s concept of the economy as a social structure, often focuses on how elites shaped an important aspect of economy: Specialised craft production and trade. This top-down perspective tends to depict non-elite actors as passive subjects of surplus extraction, reinforcing an image of despotic or absolute elite control. However, medieval economies, especially in small-scale and fragmented proto-state political entities of the Early Middle Ages, were shaped heterarchically by both elite strategies and non-elite cooperation. This paper challenges the notion of total elite dominance by highlighting the active roles of artisans, traders, and rural producers. Using archaeological and historical case studies, particularly from the Early Middle Ages of Central Europe and the iron industry, it explores the interaction between power structures and non-elite economic dynamics. By integrating the relation between elite and non-elites, this approach offers a more nuanced understanding of medieval production and trade. The study also introduces Political Economy as a valuable framework for analysing medieval economies beyond rigid hierarchical models.

301. IRON AS A COMMODITY AND CURRENCY IN 9TH-CENTURY MORAVIA

**Contribution format:** Oral  
**Contribution authors:** Michal Hlavica (Institute of Archaeology of the Czech Academy of Sciences, Brno)

Iron played a vital role in the early medieval Moravian polity, which emerged in the eastern part of Central Europe during the 9th century and collapsed at the beginning of the 10th century. Iron tools were essential for agricultural intensification, supporting the growth of emergent central places. Weapons and military equipment facilitated predatory resource extraction, primarily through the activities of Moravian mounted warrior bands. In the form of currency (axe-shaped bars of various sizes and weights), iron served as a medium for social accounting and pre-monetary exchange. Later, it may have also functioned as a form of monetary token, used at nodal points within the nascent Moravian market system. Given the multifaceted role of iron in 9th-century Moravia, this presentation will explore what the archaeological record reveals about its integration into the political economies of Moravian elites and how it helped sustain the complexity of social, economic, and political relations within this early medieval polity.

987. WAS THERE AN INDEPENDENT IRON PRODUCTION IN EARLY MEDIEVAL MORAVIA?

**Contribution format:** Oral  
**Contribution authors:** Roman Mikulec (Masaryk University, Faculty of Arts, Department of Archaeology and Museology, Brno | Institute of Archaeology of the Czech Academy of Sciences, Brno)

Iron production played a crucial economic role in medieval Europe, and it was no different in the territory of today’s

Czech Republic. During the existence of the 9th-century polity known as Great Moravia, iron was an essential commodity for the two most important pillars of its economy and power: the intensifying agricultural production and cross-border raids of armed groups, among whom mounted warriors represented the elite stratum of society at the time. Despite the importance of this commodity, our knowledge of iron production remains limited. One major question arises in particular: how was iron production organized, and to what extent was it regulated and controlled by the elites. Current research indicates that elites undoubtedly sponsored iron production. In the Moravian Karst, an uninhabited forested peripheral region close to the early medieval fortified centre of Staré Zámky in Brno-Líšeň, evidence of intensive iron production has been discovered. Subsequent iron processing then likely took place at other Moravian central places, with the most abundant finds coming from the former primary power centre in Mikulčice, where hundreds of kilograms of smithing slags were found. However, close to the Moravian Karst lies another iron production region with a different pattern of evidence, the Boskovice Furrow. This area, beyond the direct reach of main power centres, shows signs of parallel, independent, small-scale production activities. Ironworking sites there are much smaller and located near rural settlements. Their production thus most likely primarily served local communities, and to some extent possibly also for exchange. This talk presents current state of archaeological research on iron production in the Boskovice Furrow, and how this research can contribute to completing the picture of early medieval Moravian economy and its changes over time.

1309. IRON, SILVER AND LEAD. ECONOMICAL EXPLOITATION AND POLITICAL STRATEGIES IN EARLY MEDIEVAL COLLINE METALLIFERE (SOUTHERN TUSCANY ITALY)

**Contribution format:** Oral  
**Contribution authors:** Luisa Dallai – Giovanna Bianchi (University of Siena)

The close link between the exploitation of mineral deposits of southern Tuscany (from Colline Metallifere and the Elba island in particular) and the development of the area’s social, economic, political and infrastructural patterns is a well-known research topic of major historical interest. Although intensive ironworking started in pre-roman times declined round the half of the 1st century BC, mining activities are attested until Late Antiquity. From the 6th century AD on, it is traditionally accepted that the circulation of iron from Elba island stopped, and the economic and commercial dynamics linked to iron and other minerals (mixed sulphides of copper, lead and silver) begun to fade. Contrasting this traditional perspective, new data acquired thanks to archaeological research and a solid multidisciplinary approach (<https://neu-med.unisi.it>), highlight the still distinctive role played by mineral resources (iron in particular) in the economy of southern coastal Tuscany between the 6th and the first half of the 11th century. Moreover, from the 8th century onwards, archaeological research has identified signs of a resurgence of economic interest in mixed sulphide ores (i.e. deposits of copper, lead and silver), testified by settlements located in the heart of the mining areas; archaeometric analyses have shown that in the 9th century, lead from the Colline Metallifere was certainly used in glazes for pottery. All these new data indicate a well designed strategy of mining exploitation; unlike the traditional historical approach, which qualified mining activities in the early Middle Ages as episodic, today an overall strategy has been recognized, as well as a crucial role played by public authority in its development.

447. VILLA FORENSIS “STARE MESTO” NEAR ZDAR NAD SAZAVOU: RECONSTRUCTION AND BROADER CONTEXT

**Contribution format:** Oral  
**Contribution authors:** Dominika Václavíková (Charles University in Prague)

The village with market right, “Stare mesto” near Zdar nad Sazavou, represents a unique archaeological site in the Czech lands. It is the only settlement of this type, whose vast part has been archaeologically investigated during five archaeological excavations. The settlement was already present in this area during the first half of the 13th century, but the village with market right was constituted later in connection with the foundation of the Cistercian monastery in 1252. The locality in its original location did not last long. The settlement was moved to the opposite bank of the Sazava River as early as 1267, where it transformed into a town during the 14th century. Due to the translocation, the original location was almost untouched by subsequent human activities, so the site was preserved for the most part, which made such detailed knowledge possible. The study of this site employed an interdisciplinary approach, combining analyses of written sources, archaeological research, petrographic analysis and, after that, spatial analysis. These methods enabled the reconstruction of the overall picture of the village and its surrounding economic framework. The paper is divided into two parts. The first part focuses on the reconstruction at the level of the village with market right. The basic image of the village will be reconstructed, and individual production districts (pottery, iron, stone, and wooden objects production) will be presented. The second part places the site within the broader economic context of the nearby monastery, addressing the distances between the village and the monastery, other production sites, sources of raw materials, and transportation routes.



1067. BETWEEN HOUSEHOLD SUBSISTENCE AND EARLY URBAN MANUFACTURING – CRAFT-ORGANIZATIONAL ASPECTS OF HIGH AND LATE MEDIEVAL POTTERY PRODUCTION IN SOUTHERN GERMANY

Contribution format: Oral  
Contribution authors: Arne Kluge (Eberhard Karls Universität Tübingen)

Utilitarian ceramics have represented one of the most significant sources in medieval archaeology since the beginnings of the discipline’s history. The aim to establish a comprehensive and fine chronological subdivision of ceramic material has so far yielded highly variable results across southern Germany. In the parts of the region that are farther from the Rhine, particularly in the Bavarian regions, no wheel-thrown pottery existed until the late High Middle Ages. During this period, ceramics were mostly coiled and wheel-coiled. The transition from this type of pottery, which from various perspectives suggests primarily household or semi-professional production contexts, to the subsequent relatively uniform wheel-thrown ware primarily occurred during the 13th and 14th century—a phase marked by both social and craft-related transformations. This contribution aims to present the spectrum of ceramic production from this transitional period using the city of Nuremberg as a case study. Furthermore, the specific backgrounds and driving forces as well as the concrete processes of the productional development from both a technical and an organizational perspective will be examined.

1216. WAS SALT THE „WHITE GOLD” TO ALL? THE CASE OF THE PRE-INDUSTRIAL STEPPE ZONE OF EASTERN EUROPE

Contribution format: Oral  
Contribution authors: Monika Kaminska (Independent)

The main aim of the presentation is to try to compare the significance of salt in different cultures according to its accessibility and consumption in different parts of Eastern Europe as reflected in the historical sources. In other words, the presentation will demonstrate the links and differences between the worlds, of sedentary Slavic (but also Turkic) and nomadic societies of Eastern Europe emphasizing the use of salt, as a commodity essential not only in the culinary arts and for the proper functioning of the human body, but also widely used in food preservation, animal husbandry as well as in the folkloric customs, magic, and medicine. In the broad territory of Eastern Europe, from Prehistory, salt was mainly obtained by evaporating brine (the main way of extracting salt in the Carpathian zone) or by collecting salt deposited on the banks of the salty lakes or lagoons. There are early medieval sources on salt production and trade in both the Slavic and Turkic environments. Salt produced in the Steppe came from salty lakes and it was used not only by nomads such as the Khazars or Tartars but also by Slavic merchants of the Middle Ages and the Early Modern Era. During the centuries of wars, migrations, and colonisation, the region between the Carpathian and the Ural Mountains developed a specific cultural mosaic of peoples maintaining political, cultural, and commercial contacts with each other. However, since the salt itself is one of the least tangible of material goods in the archaeological context, one has to combine geographical knowledge with the analysis of the historical, archaeological, cartographic, and even iconographic sources of 10th-16th centuries, in order to illustrate the uneven dynamic between the Steppe and Slavic environments reflected in their salt production, use and consumption, and trade.

234 BETWEEN ACADEMIC IVORY TOWER, INTELLECTUAL HEDONISM, AND SOCIAL RESPONSIBILITY. DEBATING THE WIDER MEANING OF ARCHAEOLOGICAL RESEARCH AND HERITAGE MANAGEMENT

Session theme: 4. De nobis fabula narratur: archaeological practice and a profession in flux  
Session format: Regular session  
Session keywords: motivation, enthusiasm, social relevance, archaeological practice  
Session organisers: Friederike Kranig (Römisch-Germanische Kommission | Georg-August-Universität Göttingen) – Wenke Domscheit – Alexander Gramsch (Römisch-Germanische Kommission) – Ivan Radman-Livaja (Arheološki muzej u Zagrebu)  
Session discussant: Filomena Sirovica (Archaeological Museum Zagreb)

SESSION ABSTRACT

For decades, numerous projects have investigated the context of archaeological practice and the motivation of archaeologists. They ask about the social setting of archaeology, whether archaeologists find their jobs meaningful, how they assess their career opportunities, or how we can make our profession more attractive (cf. the EAA working group ‘ACE’ [A. Marciniak et al. (eds), Contemporary Faces of the Past (Poznań 2011)]; DISCO [https://

landward.eu/disco/]; N. Schlanger, K. Aitchison [eds], Archaeology and the Global Economic Crisis [Tervuren 2010]; s. a. https://www.careerexplorer.com/careers/archaeologist/satisfaction/). As these questions never lose their relevance and should be reconsidered for each generation, we seek to maintain this tradition. In a new approach to the wider meaning of archaeology, both for society and for the discipline itself, we aim to discuss whether and how our profession goes beyond the academic ‘ivory tower’ that frames our thinking and doing. It is often our enthusiasm that allows us to overlook the lack of career prospects. Such enthusiasm forms an ever-present lowest common ground in the inter-archaeological exchange, which is able to bridge wide-ranging differences – both between the various archaeological disciplines and approaches and between archaeologists and the public. But excitement is not the main or only motivation to carry on. Archaeology should make sense, shouldn’t it? It should have meaning beyond the hedonistic fun we may have doing what we are doing. In this session, we want to encourage a discussion on what archaeology is, what it could be, even what it should be. Where would you want to see archaeology going? We invite participants to present both general considerations and case studies that discuss motivations for doing archaeology in the context of contemporary social, political, economic, and environmental issues.

CONTRIBUTION ABSTRACTS

1825. QUIET ACTIVISM - CHANGING ARCHAEOLOGICAL PRACTICE FROM WITHIN

Contribution format: Oral  
Contribution authors: Laura Coltofean (EAA Education, Training and Professional Development Advisory Committee | Archaeology and Gender in Europe (AGE) Community of the EAA) – Bisserka Gaydarska (Archaeology and Gender in Europe (AGE) Community of the EAA) – Alexandra Dolea (Freelance archaeologist | European Mentoring and Coaching Council | Professional Women Network)

Diverse. Inclusive. Safe. Slow. Focused on well-being. Self-reflective. Open to dialogue. Relevant. This is how we imagine the archaeology of the future. In this paper, we review several of the pioneering projects that we have carried out in the past few years to change archaeology from the inside out. We present the initiatives in which we were involved as co-chairs of the Archaeology and Gender in Europe Community of the EAA between 2020 and 2022, such as the issuing of the EAA 2020 Statement on Archaeology and Gender; the revision of the EAA’s Code of Practice; the creation of the EAA’s Appeal and Anti-Harassment Committee; the publication of the illustrated booklet Gender Stereotype in Archaeology (Coltofean-Arizancu et al. 2021); and contributing to the EAA’s 2022 Safe Space Policy. This is followed by a discussion of our work within the EAA to raise awareness about and prevent harassment, assault, bullying and intimidation (HABI) in archaeology; to promote a slower archaeology; and to show that alternative, non-academic career pathways within the discipline are possible and can be equally fulfilling. Our involvement in these projects stems from the challenging situations that we have encountered on our personal and professional paths (e.g. autoimmune and chronic illnesses, cancer, HABI, financial instability, non-permanent and contractual academic work, freelance work, multiple international relocations) in various social, political and economic contexts in Southeastern and Western Europe. We took full responsibility for these challenges and turned them into strengths and action. Having the belief that change begins with us, we have embarked on a journey to create a supportive, nurturing archaeology where we, our challenges, and our unconventional views and research have a place. Besides our passion for exploring the human past, it is our activist work that has motivated us to keep pursuing archaeology against all odds.

2381. THE RESPONSIBILITY OF MUSEUMS IN PRESENTING ARCHAEOLOGICAL HERITAGE

Contribution format: Oral  
Contribution authors: Tatjana Cvjeticanin (National Museum of Serbia | Faculty of Philosophy, University of Belgrade)

Archaeology should make sense, shouldn’t it? As a museum professional, I dare say that archaeological exhibitions even more so. Museums often claim that they present the past as it was, neutrally, through objective facts and data. Leaving aside that the past is constantly altering in the specific relation and connection with today/present, exhibitions are always situated in time, and always personal. Archaeological exhibition should be more than an authoritative professional (ivory tower) voice stating facts, or an appealing arrangement of precious artifacts. Creating connection between past and present societies – the act of interpretation – calls for opening social, political, ethical or cultural questions important for the present. The case study from the National Museum of Serbia: the exhibition From Polytheism to Christianity: The Rotunda in Stojnik, organized in 2024, may serve as an example. This could have been a seemingly neutral presentation of the only Late Roman Early Christian church preserved in the territory of modern Belgrade and its lavish mosaic floor with votive inscriptions. Instead, as the Rotunda is in the territory of the Roman imperial mines at Mt. Kosmaj, it became the story about the exploitation of both nature and people.



483. FROM PASSION TO PURPOSE: DIGITAL LEARNING, MICRO-CREDENTIALS, AND THE SOCIAL RELEVANCE OF ARCHAEOLOGY IN THE 21ST CENTURY

Contribution format: Oral  
Contribution authors: Irena Vesevska (Ss. Cyril and Methodius University in Skopje (UKIM))

Archaeology has long been fueled by intellectual curiosity and enthusiasm, yet the profession faces challenges related to career sustainability, limited job opportunities, and the increasing need to demonstrate its relevance beyond academia. While passion sustains many archaeologists, ensuring that archaeology remains a viable and socially meaningful discipline requires innovation in education, professional training, and public engagement. This paper explores how digital learning, micro-credentials, and online training, particularly through initiatives like DigiArcheoSpace, can provide new opportunities for career sustainability, interdisciplinary collaboration, and public outreach. It also examines the conceptual reconstruction of the Episcopal Basilica in Stobi as a case study in how digital archaeology bridges academic research and public engagement. By integrating digital tools and alternative educational models, archaeology can move beyond the ‘ivory tower’ and actively contribute to contemporary societal needs. Through structured online learning, archaeologists can gain specialized skills, increase employability, and enhance public understanding of cultural heritage. This paper contributes to the ongoing debate on the future of archaeological practice, emphasizing the balance between passion, professional viability, and social responsibility in the digital era.

1147. ARCHAEOLOGY AND OTHER CLASSICAL STUDIES AT THE BEGINNING OF THE NEW MILLENNIUM

Contribution format: Oral  
Contribution authors: Zorica Kuzmanovic (Faculty of Philosophy - University of Belgrade)

The paper explores the status and role of classical archaeology and the broader humanistic tradition of classical studies within contemporary academic and social contexts. A key question arises: how can the relevance of archaeology and other classical studies be articulated in the wake of the postmodern turn? Here, the postmodern turn serves as an umbrella term for radical self-critical perspectives that challenge and interrogate the tradition of classical studies in terms of socio-political, epistemological, and ontological issues. More specifically, the paper examines the impact of certain radical strands of postmodern critique on the academic and scientific status of classical archaeology, which is viewed as an integral part and formative element of the humanistic tradition of classical studies. The discussion of this, as well as other trends shaping the contemporary scientific and academic field (e.g., the growing interest in STEM sciences, increasing scientism, and the technologization of science in the context of global neoliberal techno-capitalism), leads to a conclusion that calls for the re-affirmation, expansion, and deeper engagement with the humanistic tradition of classical studies.

389. WHAT HAS ARCHAEOLOGY EVER DONE FOR US?

Contribution format: Oral  
Contribution authors: Tomasz Gralak (Institute of Archeology, University of Wrocław)

Archaeology is about the past, but unlike history, it deals mainly with things, not words. This gives us a unique opportunity to explore areas of human activity that have never been described. In this sense, archaeology gives a voice to perfectly unknown communities and individuals. Of course, the question arises whether this has any value. For many societies, however, knowledge is a value in itself - this is why universities were established. . It may be surprising, but working with material objects also provides unique opportunities to explore ways of thinking and philosophy. The reason is the same as in the case of history – what was not recorded in writing was expressed through exercised things. Taking the hylomorphic point of view, before any material object is made, a plan is needed – what it should look like, how to make it, and how to use it later. In this sense, it is a record of human thought. . This phenomenon can be illustrated by the so-called cognitive revolution at the beginning of the Neolithic. It was when houses, for the first time, began to be built on plans composed of repeating rectangles and squares. A similar composition was recognized in the case of geometric ornamentation of ceramic vessels. Most likely, it was transferred from previously used wickerwork vessels; the mats, commonly made at that time, were probably similarly decorated. So, the widespread use of basketry technology has influenced how ornamentation and spatial organization were considered. The principle of constructing a whole from repeatable parts (modules) also influenced the way we perceive the human body. This is when strongly geometrical representations of human bodies appear. Thus, by analyzing various products of material culture, we can recognize the basic paradigms of thinking and understand the causes of this phenomenon.

1687. DOES ARCHAEOLOGICAL RESEARCH MATTER? THE VALUE OF ARCHAEOLOGY FOR HERITAGE NARRATIVES

Contribution format: Oral  
Contribution authors: Moritz Kinzel (Deutsches Archäologisches Institut, Abteilung Istanbul)

Archaeology provides a backdrop to a variety of economic sectors, including cultural tourism and the film industry, as well as to the social constructs of national identities. It is evident that archaeology is a significant field of study, as it provides the basis for heritage narratives, which in turn provide the foundation for social entities, such as communities and wider societies. These entities are all in need of a past to which they can refer. Identities require a narrative that is rooted in the past. The role of archaeology as a key discipline in providing information about the past is indisputable. However, it is important to acknowledge the inherent subjectivity of archaeological findings, which are open to interpretation. Interpretations can be influenced by various factors, including the manipulation of evidence to support or negate a particular narrative. The creation of narratives is intrinsically linked to the identification of heritage, which is a crucial aspect in the formation of identities. Identity, in turn, serves as the foundation for communities and societies. The capacity of archaeology, through its multidisciplinary research, to verify, falsify, or re-interpret narratives is therefore significant. Therefore, cultural heritage does not exist on its own. It needs recognition. Cultural heritage is ultimately only valued when there is a perceived risk of loss. Archaeology is dealing with the constant loss of knowledge. Our understanding of the past is incomplete, and every archaeological research project aims to reduce the gaps. However, with each excavation, the destruction of findings is inevitable. The contribution seeks to explore the contradictory nature of the recovery and loss of knowledge, and the role of archaeology in the creation, communication and preservation of cultural heritage.

2457. AN ARCHAEOLOGICAL SEARCH FOR MEANING AND A SENSE OF RESPONSIBILITY IN THE EXCESS OF HEREDITAS DAMNOSA AND EXSISTENTIAL VACUUM

Contribution format: Oral  
Contribution authors: Anna Zalewska (University of Lodz)

The presentation address the legitimacy of thinking deeply about the meanings and senses that drive archaeological activities and of public revealing, and naming them. The interconnectivity between archaeologists’ sense of curiosity, concern, and social or humane duty and the ways in which material remains (including dispersed necroheritage) are handled, interpreted and re-presented will be addressed. At an empirical level, the specific nature, meaning and (cognitive and social) value of two types of archaeological data will form the basis of reflection. Both are related to the materiality of a troubled recent past. The first, at once unwanted and socially neglected (as hereditas damnosa), concerns the fate of individual soldiers and specific attitudes towards phenomena entangled with the recently developed subjects of archaeology (WWI Eastern Front Archaeology). The second, which for decades is considered the focal point of contemporary archaeology at least in Poland, is concerned with the turbulent endurance in time of material witnesses to the life and death of collective subjects - the victims of the mass killings (Katyn Archaeology). These different cases show that many situations, motivations, and actions in archaeology are open and entangled in extraneous, dynamic and fluid conditions. We can respond to them either by acknowledging them, being aware of their impacts on, taking responsibility for them or by ignoring them and pretending to avoid their influences on us and those around us. The driving force behind archaeological actions can be the hope that we can act in a caring, meaningful and responsible way in response to what life throws at us and demand from us. Perhaps this can help to protect at least some of us and/or material witnesses from meaninglessness or drowning in the existential void that is so common in the 21st century and which robs so many of their power to act.

552. ARCHAEOLOGY AS ESCAPISM: A PSYCHOLOGICAL CRITIQUE

Contribution format: Oral  
Contribution authors: Thomas Meier (Heidelberg University | Forum Archäologie in Gesellschaft)

When asked about the benefit or purpose of archaeology, we rarely look inward and consider what we, as archaeologists, gain from pursuing this field. In cases we take this inward look, the response often focuses on satisfying our own curiosity or interest in history. We then often feel guilty about indulging in our hedonistic pleasures at the expense of taxpayers. However, the research topics in archaeology speak a different language: they are often closely tied to current societal challenges and reflect them in history. And many archaeologists are, in fact, vigilant contemporaries. So, not so much ivory tower, after all? But why then do we retreat into the depths of history? I’d like to offer a psychological interpretation: by engaging with the pressing issues of our time and examining them through historical material, we answer the question of the meaningfulness of our field and, above all, our own actions and lifetime. At the same time, the distant past provides a safe distance: we can control the problems through our interpretations, they are too far away to threaten us directly, and we can turn them off when they become uncomfortable by referring to our lack of knowledge, further research needs, or the constructed nature



of all history. Archaeology allows us to bathe in the good conscience of high social relevance without getting wet, as the temporal distance and scientific method protect us. And at the same time, we control access to this bath of significance: we decide how history is read and interpreted, because only we, the initiated, possess the skills to read the arcane knowledge contained in the traces of the past and reveal it to society.

235 THE ARCHAEOLOGY OF FOOD PROCESSING: INNOVATIVE APPROACHES FROM CASE STUDIES AROUND THE WORLD

Session theme: 3. Exploring methods in research, education and communication  
Session format: Regular session  
Session keywords: Ancient foods, Cooking techniques, Archaeobotany, Zooarchaeology, Residue studies, Experimental archaeology  
Session organisers: Clarissa Cagnato (Ca’ Foscari University of Venice) – Aurélie Chantran (UMR 7041 - ArScAn, équipe GAMMA)

SESSION ABSTRACT

Studying food and foodways can tell us a multitude of things about daily life, social structure, access to resources, but also ideology. While determining the individual ingredients used in past foods has become increasingly more systematic, apprehending the steps in the processing of ingredients (plant- and animal-based), for example in food and drink preparations, or for conservation, is a more complex task that requires a set of specialized tools and techniques, often used in combination. The way food is cooked can be an important testimony of cultural specificities that can change depending on the time, the geographical location, and the social context. However, studies on the subject are relatively few in number compared to studies that solely present th. species consumed. In this session, entitled “Archaeology of food processing: innovative approaches from case studies around the world”, we seek to bring together scholars working in different parts of the world and on different time periods to present their recent advances on the topic of food processing and how they are approaching this topic in light of their unique contexts and set of questions. We encourage presentations that include a range of specializations (e.g., archaeobotany, zooarchaeology, ceramic analysis, residue studies, use-wear analysis, experimental studies, ethnographic and ethnohistorical studies, etc.), among others.

CONTRIBUTION ABSTRACTS

2396. PORTSAL. - THE ROLE OF SALT SPRINGS IN THE ORIGINS OF SALT EXPLOITATION IN PORTUGAL

Contribution format: Oral  
Contribution authors: Luís Jesus (Autonomous University of Lisbon | Estoril Higher Institute for Tourism and Hotel Studies)

Sayings like “He is not worth his salt” or the Latin *salarium argentum* emphasize salt’s essential role since the earliest written records, suggesting that its significance likely extends even further. As a vital resource for humanity, salt has been a key research subject, as demonstrated by numerous ethnographic, archaeological, and historical studies. Despite being essential for millennia, salt remained largely overlooked in Prehistoric and Protohistoric Archaeology for decades. The discipline’s evolution led to a shift in focus, sidelining the study of salt. However, recent advancements—such as the rise of multidisciplinary research, the development and accessibility of analytical instruments, and the move beyond traditional typological and technological artifact analysis—have made salt a more intriguing and viable subject of investigation. Portugal has extensively exploited salt throughout history. At the very least, large-scale production dates back to Roman times, when *garum* manufacturing along the Tejo and Sado river basins and the Algarve coast fueled demand across the empire. Nevertheless, various archaeological sites present indirect evidence—particularly linked to briquetage—that has been cautiously interpreted as early salt production. The PortSalt project aims to explore the origins, extraction, usage, and distribution of salt in the diet, economy, and daily life of Prehistoric and Protohistoric populations in western Iberia. Additionally, it seeks to investigate the proximity between saltwater sources and known archaeological sites, assessing their potential connection to salt exploitation. Ultimately, it aims to identify patterns of continuity and change in food habits, shedding light on how taste and dietary choices evolved over time.

637. FOOD PRACTICES IN THE NEOLITHIC OF THE CENTRAL BALKANS: EVIDENCE FROM THE MORAVA RIVER VALLEY, SERBIA

Contribution format: Oral  
Contribution authors: Ivana Dimitrijevic (Institute of Archaeology, Belgrade)

The Neolithic in the Central Balkans (Starčevo and Vinča culture, 6200-4500 BC) evidenced the first permanent settlements in the area and the introduction of domesticates. Subsistence strategies were mainly based on crop and animal husbandry, although wild resources were also widely exploited. Therefore, the diet of Neolithic communities included meat from a wide spectrum of species – cattle, sheep, goat, pig, red deer, wild pig, etc. In this study, we present data on food procurement and processing from two large Neolithic sites in the Morava River Valley – Drenovac and Pavlovac-Gumnište, located in the central and southern Serbia, respectively. Both sites contain large, representative faunal assemblages, which allow for detailed analyses of animal remains. Here we will focus on zooarchaeological data: taxonomic representation; butchery marks; burning patterns; distribution of skeletal elements; age-at-death data, in search of food pathways from procurement to the preparation and consumption of meat. The study also includes discussion of thermal structures – ovens and hearths, the exclusive (preserved) means for meat processing in this period. Additionally, we provide insight into milk exploitation, based on the organic residue analyses on pottery. Through this multiple approach, we aim to illustrate how the Neolithic people in the Central Balkans provided and prepared animal source food as part of their daily routine activities.

675. NEOLITHIC CROP PROCESSING THROUGH THE LENS OF ARCHAEOBOTANY. A CASE STUDY FROM CENTRAL AND SOUTHERN POLAND.

Contribution format: Oral  
Contribution authors: Dominika Kofel (Nicolaus Copernicus University in Toruń)

The archaeobotanical studies of plant macroremains comprise an important source to recognize the basics of agriculture activities. The research often helps establishing both the crop processing schemes and the seasonal agriculture calendar. Archaeobotanical samples were collected at four sites: Browina site 4, Kałdus site 4, Małe Czyste site 20, and Kietrz site 25. Browina, Kałdus, and Małe Czyste are located to the north of Toruń, Kuyavian-Pomeranian Voivodeship. In contrast, Kietrz is located to the west of Racibórz, Opole Voivodeship. This presentation includes results of carpological and anthracological analyses of plant macroremains preserved as charred in soil samples and as imprints in pottery sherds and daub fragments. Materials were collected from features associated with Funnelbeaker culture. Assemblages collected from features in Browina comprised barley (*Hordeum vulgare*) and einkorn wheat (*T. monococcum*) grains along with abundant hulled wheats (*T. monococcum/dicoccon/spelta*) chaff. Additionally, there were finds of seeds and fruit of ruderal and segetal plants. Meanwhile, materials from Kałdus contained highly fragmented grains of indeterminate cereals (*Cerealialia* indet.), hulled wheat glume bases, and seeds and fruit of segetal and ruderal plants. Hulled wheat chaff as well as fragments of grass blades and/or leaves of indeterminate cereal and/or wild grasses (*Cerealialia/Poaceae* indet.) were the most common imprints noted in materials from pottery and daub from Kietrz and Małe Czyste. Additionally, the materials were tempered with fragments of bones. Based on the undertaken research, the following questions arose: 1) what stage of crop processing did we grasp? 2) is it possible to reconstruct the process and the agriculture calendar? 3) were the crops cultivated at the site or brought to? Some of the questions will find answers during the presentation as studies of plant macroremains, even sparse, might bring to light interesting insights into activities undertaken by Neolithic farmers

1582. BEYOND HOUSE SIZE: EXPLORING SOCIAL COMPLEXITY THROUGH VESSEL USE IN EARLY FARMING COMMUNITIES AT LBK SITE IN TĚŠETICE-KYJOVICE (CZECH REPUBLIC)

Contribution format: Oral  
Contribution authors: Peter Tóth (Masaryk University) – Veronika Brychová (Czech Academy of Sciences) – Johana Malíšková – Miriam Nývltová Fišáková (Masaryk University)

Organic residue analysis of pottery vessels serves as a powerful archaeological tool, offering unique insights into past human activities, including economic patterns, culinary traditions, and social interactions. This analytical approach proves particularly valuable in studying the Neolithisation process when communities transitioned to farming lifestyles. While broad regional narratives dominate current research, detailed site-specific studies remain underrepresented, despite their potential to reveal nuanced patterns of early agricultural societies. This study examines vessel utilization and cooking practices at the LBK settlement of Těšetice-Kyjovice (Czech Republic, 5300-5000 BCE) through an integrated approach combining lipid residue analysis of pottery with zooarchaeological data. The research addresses three central questions: 1. What patterns of food processing and cooking practices can be identified at the site? 2. How do household-level differences manifest in vessel use and food preparation techniques? 3. To what extent do the organic residue data correlate with the zooarchaeological evidence. The methodology involved analysing 73 pottery samples collected from four houses of varying dimensions (small, medium, and large). The sampling strategy prioritised rim fragments from vessels associated with food preparation and consumption. Lipid extraction and subsequent analysis involved GC-FID, GC-MS and GC-C-IRMS techniques, with results compared against the faunal assemblage. This integrated analytical approach aims to enhance our understanding of household dynamics within Neolithic communities.



2431. ORGANIC CONTENTS OF BRONZE AGE HORIZONTAL-RIM VESSELS IN FUNERARY CONTEXTS FROM NORTHWEST PORTUGAL: A NEW CASE STUDY

**Contribution format:** Oral  
**Contribution authors:** César Oliveira (HERCULES Laboratory | In2PAST | University of Evora) – Ricardo Erasun (Arqueoges, Lda, Guimarães) – João Back (University of Minho)

Bronze Age horizontal-rim vessels are ceramic containers characteristic of the northwest Iberian Peninsula, including both Portugal and Spain, notable for their distinctive, outward-projecting rim along the upper edge. These vessels have been found in a variety of archaeological contexts, including domestic and ritual/funerary settings. Some evidence indicates that in funerary contexts, they may have played specific roles in burial practices, such as holding food, liquids, or ritual substances. However, chemical evidence regarding the contents of these vessels remains limited, based on a small number of recent studies conducted on a few individuals from scattered locations. The Atouguia settlement (Guimarães, Northwest Portugal) is an archaeological site covering an area of nearly 9,000 square meters, with some contexts attributable to the Bronze Age. The site has been meticulously excavated, revealing remnants of a residential area, a storage zone, and a funerary area containing burial pits with probable single inhumations. Approximately two dozen vessels were recovered, mostly intact, which makes them less susceptible to leaching, offering a unique opportunity to conduct a comprehensive analysis of a representative number of vessels from a single, well-contextualized site. The vessels were carefully recovered following best archaeological practices to facilitate organic residue analysis and were studied using gas chromatography-mass spectrometry (GC-MS) to identify biomolecular residues. Preliminary results indicate strong evidence of ruminant fats preserved within the vessels. This work marks a significant advancement over prior research, as all samples originate from a single location, which eliminates inter-site variability and allows an integrated interpretation of the archaeological site. The materials were collected in the field with minimal handling and subsequently excavated and scraped in a controlled laboratory environment, ensuring the best possible conditions to prevent contemporaneous contaminations.

1013. FROM LIPIDS TO FLAVOURS: A MULTI-PROXY APPROACH TOWARDS RECONSTRUCTING ROMAN FOOD PROCESSING AND PRACTICES IN THE WESTERN PROVINCES

**Contribution format:** Oral  
**Contribution authors:** Theoni Baniou (Landscape Archaeology Research Group (GIAP), Catalan Institute of Classical Archaeology (ICAC)) – Akshyeta Suryanarayan (Faculty of Asian and Middle Eastern Studies, University of Oxford | McDonald Institute for Archaeological Research, University of Cambridge) – Joan Villanueva – Nuria Moraleda-Cibrián (Institut de Ciència i Tecnologia Ambientals (ICTA-UAB), Universitat Autònoma de Barcelona) – Núria Romani Sala (Serra Hünter Fellow, Autonomous University of Barcelona) – Laurent Bouby (Institut des Sciences de l’Evolution de Montpellier (ISEM), Université de Montpellier) – Alexandra Livarda (Landscape Archaeology Research Group (GIAP), Catalan Institute of Classical Archaeology (ICAC))

Iesso (presently known as Guissona, Catalonia, Spain) is a Roman town with a broad chronological occupation, extending from 120 BCE to the 7th century CE. The combination of the archaeobotanical analysis, ceramic Organic Residue Analysis (ORA) and Geomorphometric (GMM) analysis on key crops (grapes) allow us to shed new light into the culinary and agricultural practices in the western Roman provinces, and in this case in the site of Iesso. The ORA component of this research specifically targeted lipids from animal and plant fats to reconstruct the processing and use of these fats, and to identify food processing and cooking methods. Complementing these biochemical findings, archaeobotanical analysis provided a broader picture of the plant assemblage present at the site. Indeed, due to the unusual preservation conditions for the Mediterranean region (waterlogged), a rich archaeobotanical material has been preserved, allowing the preservation of materials (e.g. spices, herbs) that shed light on one more aspect of the culinary traditions of the inhabitants of the site, adding detail and context into the food processing practices identified by ORA. Finally, the GMM approach employed high-resolution imaging and statistical shape analysis to quantify the morphological variability of grape pips indicating both their origin and use (i.e. for table consumption or for the production of wine). The findings of these analyses combined together offer a broad perspective for understanding the ancient foodways while adding new information on Roman food practices.

610. COOKING WARE AND FOOD IN BYZANTINE PALESTINE: NEW CONTRIBUTIONS

**Contribution format:** Oral  
**Contribution authors:** Laura Vié (Institut français du Proche-Orient)

The question of food during the Byzantine period in the southern Levant is still a relatively unexplored subject.

The main studies carried out on the subject focus on one type of source: ancient written sources. There are many written sources that mention food issues, particularly Jewish texts (Talmud, Mishna) and Christian texts (lives of saints). However, until now, researchers have made very little use of a more global approach that takes cooking ware into consideration. An in-depth study of cooking ware from the southern Levant during the Byzantine period offers a different and complementary approach to the subject. Some shapes are clearly designed for boiling and stewing, while others are more suited to frying. Some of these shapes are mentioned in ancient texts, along with their function. Cooking ware sheds light on the food habits of local populations. The shapes of cooking ware also allow us to identify changes in cooking methods. The marked increase in the number of open shapes (cooking bowls or ‘coquelles’) in the Byzantine period seems to indicate a change in food practices compared with the Roman period.

157. INVESTIGATING MOCHICA DIETARY PRACTICES (NORTH COAST OF PERU, 4TH-9TH CENTURIES AD): THE CONTRIBUTION OF FUNCTIONAL ANALYSIS OF POTTERY

**Contribution format:** Oral  
**Contribution authors:** Pauline Coat (University of Paris 1 Panthéon-Sorbonne | cnrs - umr8096 ArchAm)

The social structure and cultural identity of the Mochica, a pre-Columbian society settled on the north coast of Peru between the 4th and 9th centuries AD, are still subject of numerous debates. While the resources consumed by these people have been well studied, the ways in which they were processed, consumed and stored remain poorly documented. Yet the choices made by societies for these different activities are a strong cultural and social marker. Thus, from a cultural perspective via food traditions, I am developing an integrated functional approach, combining typometric, use-wear, and physico-chemical analyses of Mochica pottery. This approach enables me to concretely address cooking methods and the preparation of fermented beverages. In order to identify chronological evolutions and regional variations that reveal the cultural and social dynamics of the Mochica group, I have selected archaeological pottery from sites representative of the entire period and area of Mochica occupation. The construction of ethnographic and experimental frames of reference in Peru enables me to interpret the use-wear identified on this archaeological corpus. In this way, I propose an innovative approach to Mochica food traditions, shedding light on the identity of this cultural group through its food processing methods.

814. NEW INSIGHTS INTO MAYA CUISINE: AN EXPERIMENTAL APPROACH TO RECONSTRUC. ANCIENT TAMALE RECIPES

**Contribution format:** Oral  
**Contribution authors:** Clarissa Cagnato – Giusi Sorrentino – Andre. Brunelli – Laura Longo – Alessandro Bonetto – Matteo Parisatto – Antonio Marcomini – Elena Badetti (Ca’ Foscari University of Venice)

Tamales, prepared traditionally from masa (maize dough) filled with meat, vegetables, and/or fruits before being wrapped in leaves and steamed, are believed to have been consumed by the ancient Maya. Epigraphically, tamales were represented by the glyph wa or wah, and were also depicted in Classic Maya iconography, from murals to polychrome ceramic vessels. Besides the Dresden Codex (Maya book), which mentions the use of some meat products in the preparation of Maya tamales, the types of plants used in their elaboration remains much more elusive, as is any direct archaeological evidence of such foods. To understand under what conditions archaeologists might be able to recover evidence of these foods we developed a reference collection through a set of replicative experiments. The tamales were prepared using a range of ingredients available to the ancient Maya, and were subsequently exposed to varying thermal conditions for different periods of time. The combination of imaging techniques– optical microscopy, scanning electron microscopy, and synchrotron radiation-based phase-contrast X-ray computed microtomography– allowed us to identify a set of diagnostic elements that could help refine the identification of ancient complex foods. Our results can be of use to archaeobotanists working in the New World, and the established methodological approach can be of value to a broader audience.

114. ORGANIC RESIDUE ANALYSIS TO RECONSTRUCT THE CHOCOLATE RECIPE IN EL SALVADOR

**Contribution format:** Oral  
**Contribution authors:** Estelle Praet (The British Museum) – Katie Sampeck (University of Reading) – Rebecca Stacey – Danny Zborover (The British Museum)

Investigations of cocoa use and consumption have mostly focused on the identification of cocoa in iconography and in ceramic residues, particularly on the presence of the theobromine and caffeine biomarkers. While these studies contribute to understanding the spread of cocoa trade, consumption and its associated material culture, they tend to overlook the extraordinary diversity of recipes using cocoa beans, pulp and pod. Insights from epigraphy, historical sources and ethnography suggest a variety of drinks and foods using cocoa in different states and ways, adding ingredients such as maize, chili and flowers. This paper focuses on one recipe in particular, the



recipe of “chocolate” appearing among the Pipil in Izalcos, Salvador. While the region became the most important cocoa producer in the colonial period, it has been overlooked in studies. This paper presents the results of organic residue analysis undertaken, for the first time, on vessels from archaeological contexts in El Salvador. To contextualise these results within the broader Mesoamerican context, they are compared to organic residue analyses that explore the uses of cacao in vessels from the Postclassic site of Isla de Sacrificios, Veracruz, Mexico.

**1743. CULINARY HABITS IN MEDIEVAL SPAIN DURING THE ‘GREEN REVOLUTION’: CHEMICAL INSIGHTS FROM 10TH-CENTURY POTTERY AT THE MOZARABIC SITE OF TÓZAR**

**Contribution format:** Oral  
**Contribution authors:** Jasmine Lundy (University of York) – Luca Mattei (Universidad de Granada) – Cristina Martinez-Alvarez (Polish Academy of Sciences) – Becca Howarth – Alexandre Lucquin – Bronwen Kennedy – Betsie Hall (University of York) – Guillermo Garcia-Contreras (Universidad de Granada) – Michelle Alexander – Oliver Craig (University of York)

Organic residue analysis (ORA) of domestic cookware offers direct chemical evidence of the resources used in daily culinary practices, providing valuable insights into food availability and preparation methods. This study presents the first results from ORA of pottery vessels from the rural Christian site of Tozar, Granada, focusing on pottery use in the 10th century AD. The research aims to identify key resources utilised in such settings and contributes to a broader study of pottery use throughout medieval Spain. ORA has revealed important information about the types of products processed in these vessels, with notable distinctions emerging between different forms and fabrics in the assemblage. Identified residues include primary animal meat products, secondary dairy products, and plant-based ingredients. Building on a large-scale study of medieval Sicilian culinary practices, we explore how ORA can enhance our understanding of Islamic cuisine in Medieval Spain, suggesting new avenues for research. Specifically, we advocate using high-resolution mass spectrometry techniques to better identify dairy species and specific plant products. This approach has great potential in answering important questions regarding resource use during the medieval Islamic Green Revolution and its impacts on daily culinary practices.

**1913. PALAEOPROTEOMIC INSIGHTS INTO MEDIEVAL FOODWAYS: ANALYSIS OF “PIETRA OLLARE” VESSEL RESIDUES FROM NOGARA, NORTHERN ITALY**

**Contribution format:** Oral  
**Contribution authors:** Dario Monaco (University of Verona) – Jessica Brandi – Daniela Sorio – Daniela Cecconi – Fabio Saggioro (University of Verona)

Food provides a unique lens through which we can observe everyday and social behaviours, linking physiological needs with economy, society, and culture. The study of food in past societies is an increasingly dynamic and innovative field of research that combines archaeological methodologies with disciplines like physics and chemistry. In this study, we employed a palaeoproteomic approach to analyse food residues found on “Pietra ollare” (soapstone) vessels from the medieval village of Nogara, located near Verona in Northern Italy. The samples were recovered from layers within and around two houses that date back to the 9th and 11th centuries. Building on our previous research presented at the last conference, this contribution highlights the progress made in recent months through our proteomic protocol. Our analyses successfully extracted and identified a range of animal proteins preserved in the charred residues, providing new insights into the dietary habits of the village’s inhabitants. These findings complement existing archaeobotanical and archaeozoological studies, enriching our understanding of food consumption in the settlement. Although our results are preliminary, they contribute to a deeper understanding of dietary practices in Nogara and offer a glimpse into the daily life of a rural settlement during the Early Middle Ages in Northern Italy.

**1234. MEDIEVAL COOKING PRACTICES: AN EXPERIMENTAL APPROACH TO ARCHAEOLOGICAL TRACES**

**Contribution format:** Oral  
**Contribution authors:** Aurélie Chantran (UMR 7041- ArScAn | université Panthéon-Sorbonne)

Cooking traces are frequently observed on archaeological materials, yet their potential for reconstructing medieval culinary practices remains underexplored due to a lack of dedicated studies. To address this gap, an experimental project applied various cooking techniques to ceramic, faunal, and plant materials, establishing a reference dataset of diagnostic traces. These references facilitated the development of an analytical framework to identify specific cooking practices and distinguish regional and social variations in culinary traditions during the late Middle Ages. Preliminary results were obtained from comparing the experimental reference collection to archaeological materials recovered from different contexts and regions in France. These data seem to reveal some regional and social specificities that can be related to the cooking recipes written in the same periods. Integrated with other archaeological approaches at Orville Castle, near Paris, this method has yielded a high-resolution reconstruction of the site’s cuisine. This innovative approach is applicable to a broad range of ceramic

types and could be extended to other European contexts, providing insights into the emergence and diffusion of cooking practices over time.

**183. EXPERIMENTAL INSIGHTS INTO COOKING, PROCESSING, AND PRESERVATION OF RABBITS DURING THE PALAEOLITHIC**

**Contribution format:** Poster  
**Contribution authors:** Anna Rufà (ICArEHB, Universidade do Algarve | PACEA-UMR 5199, Université de Bordeaux, CNRS, MCC) – Milena Carvalho (ICArEHB, Universidade do Algarve) – Jonathan Haws (University of Louisville, Louisville | ICArEHB, Universidade do Algarve) – Leopoldo Pérez (Universidad de la Laguna | IPHES-CERCA) – Alfred Sanchis (Museu de Prehistòria, Servei d’Investigació Prehistòrica, Diputació de Valencia) – Cristina Real (Universidad de Valencia)

The archaeological record from southwestern Europe, particularly the Iberian Peninsula and southern France, highlights the consistent inclusion of small prey, especially rabbits (family Leporidae), in the subsistence strategies of both Neanderthals and Anatomically Modern Humans during the Middle and Upper Palaeolithic. However, a key challenge in studying small game lies in the fact that these animals can often be processed without the use of lithic tools. This means that the absence of processing marks does not necessarily indicate they were not exploited. Conversely, the presence of cut marks or similar evidence on small game bones may also reflect specific secondary processes rather than the primary butchery itself, as tools are not always required depending on the cooking method employed. To address these complexities, an experimental study was conducted, examining three cooking techniques—roasting, smoking, and drying—with the latter two also serving as preservation methods. Eight rabbits were subjected to each experiment, and the resulting bone modifications were analysed taphonomically. The findings are compared to archaeological assemblages from the Mediterranean Iberian region to better interpret small prey use and the broader economic behaviours of Palaeolithic populations and to figure out preservation techniques potentially used by past human populations.

**825. THE ROLE OF STARCH AGING IN RECONSTRUCTING PREHISTORIC DIETS**

**Contribution format:** Poster  
**Contribution authors:** Giusi Sorrentino – Clarissa Cagnato – Laura Longo (Department of Environmental Sciences, Informatics and Statistics, Ca’ Foscari University of Venice) – Francesca Porpora – Emiliano Carretti – Luigi Dei (Chemistry Department “Ugo Schiff”, University of Florence) – Elena Badetti (Department of Environmental Sciences, Informatics and Statistics, Ca’ Foscari University of Venice)

Ground stone tools (GSTs) preserve evidence of past human activities such as resource processing that include the elaboration of plants for nutritional purposes. Residues, such as starch grains, provide evidence of these activities. These micrometric grains (1–100 µm) are identified by their morphology and size, which vary by plant species and organs. The presence of different starch grains on a single GST suggests the processing of multiple plants, potentially reflecting multi-ingredient dishes. Organic residues, however, face preservation challenges in archaeological contexts, making careful recovery and identification crucial for accurately reconstructing ancient diets. In particular, archaeological starch grains are typically altered by time, burial conditions, and ancient processing methods such as heating or grinding. In the framework of the SMarT4BioArCH project [1], we developed a reference collection of starch extracted from various plant organs that may have been available for Homo sapiens consumption during MIS 3 (60-25 ky BP). Multiple aging tests were conducted on the modern starches and using various imaging techniques, we observed the impact of these different treatments on starch granules. Comparing the morphology of modern damaged granules with the ancient ones can further aid in their identification, in turn revealing a wider range of plant resources that may have been utilized in prehistoric diets than previously recognized. [1] Ministero dell’Università e della Ricerca of Italy, Project PRIN2022 2022XX8BRT PNRR, CUP Master B53DZ3014020006. Next Generation EU, is gratefully acknowledged for financial support.

**881. BONE FAT PROCESSING AT BADANJ – GRČIĆI: FAUNAL RESEARCH INTO SUBSISTENCE IN THE EASTERN ADRIATIC**

**Contribution format:** Poster  
**Contribution authors:** Signe Aspengren (University of California, Santa Barbara) – Emil Podrug (Šibenik City Museum) – Sarah McClure (University of California, Santa Barbara)

This research aims to better understand food processing and subsistence in the Eastern Adriatic Copper Age by identifying animal bone fat exploitation through faunal fracture patterns. The Croatian site of Badanj – Grčići, associated with the Nakovana Culture, dates to the Early Copper Age (3500 B.C.E.). The site has a highly



fragmentary faunal assemblage that suggests people extracted bone fat, likely due to its high caloric content, nutritional role in metabolizing protein, and reliability in times of resource stress. The two main methods of fat extraction – marrow processing and grease rendering – require different amounts of energy and resource investment. Bone marrow can easily be accessed by several blows to a long bone diaphysis, whereas grease rendering requires cancellous bone to be comminuted prior to boiling for several hours. Trade-offs between calorie maximization and labor minimization may occur depending on resource availability. As a result, the degree to which animal bones have been processed can be used as a proxy for subsistence stress. Ignoring potential food resources that are more tedious to obtain is a sign of luxury. However, if a resource is exploited intensively, as is required for grease rendering, it may indicate subsistence stress as additional labor and fuel resources are converted to calories. Bone breakage patterns between cortical and cancellous bones at Badanj are used to identify evidence of marrow processing and grease rendering. Results indicate that more marrow processing occurred at the site than grease rendering. This suggests that primary animal resources were not used as extensively as possible. This may be due to increased reliance on proteins and fats from secondary animal products such as milk or cheese. This research allows for the interpretation of a highly fragmented faunal assemblage and provides greater insight into the foodways and animal economies in the eastern Adriatic.

**1329. DINING WITH THE SARMATIANS: AN ARCHAEOZOOLOGICAL PERSPECTIVE ON DIET STRATEGIES AT NOVI KNEŽEVAC – SITE 97**

**Contribution format:** Poster  
**Contribution authors:** Simeun Srdanovic (University of Belgrade - Faculty of Philosophy) – Mladen Mladenović (Institute of Archaeology, Belgrade) – Teodora Mladenović (University of Belgrade - Faculty of Philosophy) – Neda Mirković-Marić (Intermunicipal Institute for the Heritage Protection Subotica)

This study examines the diet strategies of the settlement at Site 97 in Novi Kneževac (northern Banat), based on animal remains recovered during rescue excavations in 2023. The faunal assemblage, dating from the 3rd to 5th centuries AD, is likely associated with Sarmatian occupation and includes a variety of mammal, bird, fish, mollusk, reptile, and amphibian species. Domestic mammals dominate, with sheep/goats, cattle, and pigs being the most common. Chicken bones prevail among bird remains, catfish is the most frequent fish species, and Painter’s mussel is the dominant mollusc. These findings offer significant insights into the dietary practices and subsistence strategies of the settlement, particularly focusing on animal husbandry and meat consumption. Given the scarcity of archaeozoological studies on animal remains from Sarmatian settlements in Serbia, this research aims to address that gap and contribute to a deeper understanding of the dietary patterns at the site in particular, but also in the Sarmatian world and Late Antiquity in general.

**236 METAL DETECTED ARTEFACTS IN THE PLOUGH ZONE: INFORMATION LOST OR FOUND**

**Session theme:** 1. On artefacts and beyond  
**Session format:** Regular session  
**Session keywords:** Plough zone, Artefacts, Metal detecting  
**Session organisers:** Kiara Beaulieu (Universiteit Antwerpen) – Tuuli Kurisoo (Tallinn University) – Maria Smirnova (University of Tartu) – Michael Lewis (British Museum)

**SESSION ABSTRACT**

Thousands of archaeological sites lie within the plough zone, where agriculture has a direct impact on the preservation of valuable information. Many of these sites have been discovered by metal detectorists, sparking an ongoing debate as to whether they are rescuing artefacts from degradation or inadvertently compromising the limited information contained within ploughed soils. While such discussions are undeniably important, and largely dependent on the laws and practices governing metal detecting in different countries, this session focuses primarily on the informational value of plough-soil finds. The session invites papers that consider how different search method techniques and legal restrictions affect our understanding of potential sites within the plough zone, and how metal detecting and other fieldwork methods complement each other to maximise this understanding. Papers may also consider what types of find assemblages are considered indicative of potential archaeological sites, and introduce current research projects focusing on the plough zone and the (metalwork) artefacts it contains. Another important focus will be the impact of public finds recording on our knowledge of the archaeological landscape, how public finds databases can be productively analysed, and how this practice has enriched or limited interpretations of artefact distribution. Presenters will also be encouraged to consider whether artefacts and their find contexts within the plough zone are often ignored because of assumptions that

this layer contains limited information or whether challenges arise instead from certain biases, such as the fragmentation and limited accessibility of artefactual and contextual data. This session is organised through the European Public Finds Recording Network (EPFRN).

**CONTRIBUTION ABSTRACTS**

**753. FROM METAL DETECTOR FINDS TO SETTLEMENT DISCOVERY. SOME ASPECTS OF THE ARCHAEOLOGICAL RESEARCH ON THE KALININGRAD (SAMBIAN) PENINSULA**

**Contribution format:** Oral  
**Contribution authors:** Jaroslaw Aleksei Prassolow (Leibniz Zentrum für Archäologie (LEIZA-ZBSA)) – Konstantin Skvortsov (Independent)

One of the characteristic traits of the Iron Age settlement area of the Old Prussians prior to the Teutonic Order period of the local history was an extremely high-density network of the settlement and burial sites. In spite of the more than 150 years long research history of the Sambian (nowadays Kaliningrad) Peninsula many of them remain undiscovered i.e. still not known to the official science. However, in the last decades more and more unfortified settlements appear on the archaeological map of the peninsula, partially due to the intensive use of metal detectors by professional archaeologists during their surveys as well as indirectly as a result of the illegal activity of the modern treasure hunters. Monitoring of their destructive activity in online social networks and forums sometimes leads to the identification of the finds-rich micro-areas, which after their investigation by the scholars often appear to represent the territories of ancient unfortified settlements. The paper focuses on the latest both typical and positive examples of the discoveries of the settlements of the so-called late heathen period (2nd half of the 11th – first half of the 13th centuries) and demonstrates different aspects of the metal detectors usage: starting with single finds detection in the ploughing horizon, followed by application of geological survey methods and subsequent performance of full-scale excavations of the archaeological sites and ending up with comparative result analysis of all applied research methods. Taking in account the fact that metal detectors will most probably remain one of the most efficient field research tools for discovery of single metal artefacts in the plough zone for the next decades working out a realistic attitude to their usage and research results interpretation is discussed in frames of the paper.

**1546. A DANISH PERSPECTIVE: ON THE INTERACTION BETWEEN METAL DETECTOR USERS, MUSEUMS AND THE PRESERVATION OF LOOSE CULTURAL HERITAGE**

**Contribution format:** Oral  
**Contribution authors:** Rikke Søgaard (National Museum of Denmark)

The widespread use of metal detectors has transformed plough-zone archaeology, with thousands of artefacts reported each year. However, the research value of these finds depends not only on what is discovered but also on how they are recorded and interpreted. Drawing on 2024 survey data from over 200 Danish detectorists, this paper presents how recording practices, collaboration, and data accumulation shape the understanding of plough-zone finds in Denmark. Furthermore, the growing volume of found and reported artefacts presents an ongoing challenge for local museums and the National Museum, raising concerns that the rapid growth of detector finds may marginalize less ‘spectacular’ artefacts and reinforce collection biases in how the plough zone is interpreted. Digital platforms like DIME improve documentation, but inconsistencies in recording practices continue to influence the archaeological narrative. Objects of high cultural or monetary value are often prioritized in the legislation, while more mundane items—despite their potential to reveal insights into everyday life—are overlooked. This raises critical questions about what is considered significant and what gets excluded in the process. The exclusion of everyday items may marginalize historical minority groups and lower socio-economic classes. The paper also raises essential questions about the thresholds for documentation: How many finds are enough to create a meaningful narrative? And what defines their value—cultural significance, rarity, or their role in understanding everyday life?

**1578. A FIELD FULL OF RUBBISH: A CASE STUDY MITTERDORF, AUSTRIA**

**Contribution format:** Oral  
**Contribution authors:** Raimund Karl (Universität Wien)

Excavations 2024 in Mitterdorf, Austria, were supported by over 40 metal detectorists, who not only worked as volunteers on the excavation, but also surveyed the surrounding field, searching an area of c. 1 hectare for a total of well over 400 hours. The excavation uncovered three badly trashed Urnfield cremation burials and the remains of two (or possibly three) late Hallstatt houses (one containing a loom which had burnt down in situ). The metal detector survey on the surrounding c. 1 hectare recovered well over a 1000 metal (and a number of other) finds from the Roman period to the present from the ploughsoil. Of the metal detected finds, just one, discovered in



the spoil removed during excavation (rather than in the ploughsoil), was of a late Hallstatt date and thus probably relates to the excavated house remains. None of the others, discovered in a field that, until quite recently, was in the middle of nowhere (and arguably still is) relates to any activity on it that left any interpretable archaeological traces. Yet: the rubbish collected from that field contains over 10 silver coins - 3 Roman, several mediaeval and early modern ones, and several from the 19th century, including one from the Napoleonic Kingdom of Italy - quite a haul of pilgrim crosses and medals, and that on top of the usual farming-related rubbish you would expect in any field. Even if only the finds deemed ‘interesting’ by the detectorists would be reported: what, if anything, can they tell us about anything (other than farming) that was going on in that field? What more (or less?), if (as we did) all finds were recorded and reported?

**1692. PRELIMINARY RESULTS OF FOUR LANDSCAPE SURVEYS OF SITES DISCOVERED BY METAL DETECTORISTS IN ESTONIA**

**Contribution format:** Oral  
**Contribution authors:** Maria Smirnova (University of Tartu) – Tuuli Kurisoo (Tallinn University) – Ulla Kadakas (Estonian History Museum)

In Estonia, dozens of archaeological sites are discovered by metal detecting enthusiasts every year, most of them are located in the ploughing zone. It is important to understand the nature and the state of preservation of these sites to determine what archaeological information can still be obtained after decades or centuries of cultivation. As a part of our ongoing project to improve knowledge of the archaeological heritage discovered by the local metal detecting community, we are undertaking small-scale fieldwork at such sites. Our research aims to assess whether in situ contexts have been preserved, to define site boundaries, and to determine whether these sites should be officially listed. In addition, we hope that our fieldwork will help to establish the most effective methods for investigating such sites in Estonia, which could be used by the National Heritage Board. This presentation will present the results of surveys conducted at four sites in 2024 and will illustrate the insights that can be gained from archaeological sites within the Estonian ploughing zone.

**2192. THE MORE THE MERRIER? METAL DETECTING RALLIES IN FLANDERS**

**Contribution format:** Oral  
**Contribution authors:** Pieterjan Deckers (KU Leuven) – Emma Yskout (Histories vzw)

While the metal detecting hobby has long been the subject of debate within the archaeological discipline, detector rallies have only recently come to the fore as a topic worthy of consideration for both professional archaeologists and heritage managers (Wessman et al. 2022). These social events are usually organized by the hobby community and bring together large numbers of detectorists over one or more days. They are increasing in number and scale in a number of countries, especially those with permissive legislation towards hobby detecting. Consequently, it is timely to discuss the nature and potential impact of such events, as well as to consider professional and policy responses. Building on observation at rallies and collaboration with organizers, the MA research conducted by one of the authors (EY), and official data, this paper will explore the background, nature and impact of rallies in Flanders (Belgium), where metal detecting by the public is allowed since 2016. Furthermore, it will report on an ongoing project at Histories (the support organization for heritage volunteers in Flanders) to develop a consensus protocol regarding rallies amongst relevant stakeholders, from organizers to heritage authorities.

**2354. THE WILD EAST? METAL DETECTING IN UKRAINE: CHALLENGES, ETHICS, AND COLLABORATION IN A CHANGING LANDSCAPE**

**Contribution format:** Oral  
**Contribution authors:** Dmytro Nykonenko (University of Turin)

Metal detecting in Ukraine occupies a complex and often controversial space, straddling private collecting, the illicit antiquities trade, hobbyist activities, and volunteer archaeological efforts. This situation is largely shaped by the country’s legal framework and the specific regulations governing archaeological heritage, including metal detecting practices. This study explores the development of metal detecting communities, the challenges posed by the illegal market, and the prejudices and stereotypes that shape interactions between detectorists and the academic community. It also examines cases of responsible engagement, where metal detecting contributes to the study and preservation of archaeological heritage in plough zones, providing a comprehensive perspective on the issue. The report focuses on the theoretical value of artifacts and contextual information recovered from arable land, as well as the potential for their scientific analysis. Additionally, it highlights cases where significant archaeological sites and objects have been identified through metal detecting activities. By addressing these topics, this study contributes to the broader debate on balancing heritage protection with the realities of metal detecting, offering insights from the Ukrainian experience that align with global discussions on public engagement in archaeology. Furthermore, the paper considers the unique challenges of metal detecting in wartime, examining

how conflict conditions have reshaped the field and introduced new risks and ethical dilemmas.

**239 FROM HISTORIES OF RESEARCH TO HISTORIES OF KNOWLEDGE? THE STATUS AND FUTURE PERSPECTIVES OF THE HISTORY OF ARCHAEOLOGY**

**Session theme:** 4. De nobis fabula narratur: archaeological practice and a profession in flux  
**Session format:** Regular session  
**Session keywords:** history of archaeology, theory, methods, sources, interdisciplinary studies, history of science  
**Session organisers:** Laura Coltofean (Research Cluster 5: History of Archaeology, German Archaeological Institute) – Aleksandar Bandović (National Museum of Serbia) – Kerstin Hofmann (Romano-Germanic Commission of the German Archaeological Institute)

**SESSION ABSTRACT**

This session discusses the status and the future of the history of archaeology as a research field. After significant developments in the mid-1990s and early 2010s, the field has reached a standstill in the past decade, addressing the same research themes and using the same analytical frameworks, methods and sources. There have been some theoretical and methodological intersections with, e.g., the history of science, sociology and network studies, but these are rather the exception than the norm. Research on the history of archaeology has mainly been carried out in isolation in small networks whose members interact and collaborate between themselves, largely divided by regional specialisms and as a secondary ‘hobby’ interest. In addition, the interest of younger generations of scholars is reduced due to unpromising career prospects and limited funding possibilities. Moreover, the history of archaeology is still mainly practiced in Western Europe and Northern America and is not even recognized as a subdiscipline in various archaeological traditions across the globe. All this indicates that the field needs critical assessment and a redefinition. We welcome papers that reflect on the following topics and more:

- Reasons behind the current status of the field and viewpoints that challenge it;
- What contributions have histories of archaeology made to archaeology, other disciplines and societies so far?
- New research themes, theories, methods and sources for the history of archaeology;
- Case studies examining theoretical and methodological interactions between the history of archaeology and other archaeological subdisciplines and research fields (e.g., the history of science, interdisciplinary studies, sociology, philosophy);
- The presence of the history of archaeology at conferences and non-academic events, in funded projects, different publishing venues and university curricula globally;
- Strategies for increasing research interest in the history of archaeology in European (e.g., Central and Southeastern Europe) and non-European areas.

**CONTRIBUTION ABSTRACTS**

**2129. LOOKING INTO THE MIRROR: A CRITICAL ASSESSMENT OF THE HISTORY OF ARCHAEOLOGY AS A FIELD IN THE PAST DECADE (2015-2025)**

**Contribution format:** Oral  
**Contribution authors:** Aleksandar Bandovic (National Museum in Belgrade) – Laura Coltofean (Research Cluster 5: History of Archaeology, German Archaeological Institute) – Anna Gustavsson (Rio Göteborg)

This paper assesses the status of the history of archaeology as a research field at an international level in Europe in the past ten years (2015-2025). It examines the status of the field by reviewing the existence of publications related to the history of archaeology in various international publishing venues (e.g. European Journal of Archaeology, Antiquity, Oxford University Press, Springer, Oxbow, Archaeopress); by offering an overview of the main themes that have been explored in these publications; by evaluating the presence of the history of archaeology in sessions at international conferences (e.g. EAA, UISPP, WAC) and in funded projects (e.g. ERC projects); and by providing an overview of the existing networks of historians of archaeology, their scope and functioning. It argues that the history of archaeology has reached a standstill in the past decade and, although it is an undeniably useful pursuit (at least for its practitioners), its real value and impact are insufficiently felt and recognized within the wider archaeological discipline. It reflects on the consequences of this situation, along with the possible reasons behind it. Finally, it proposes a few solutions that might increase the relevance of the field and the interest in it.



2409. THE USE (AND ABUSE?) OF A HISTORY OF ARCHAEOLOGICAL THOUGHT IN CONTEMPORARY SCHOLARSHIP

Contribution format: Oral  
Contribution authors: Thea De Armond (New Mexico State University)

Bruce Trigger’s A History of Archaeological Thought is perhaps the most influential work of Anglophone scholarship on the history of archaeology. Its first edition was among the first—if not the first—syntheses of worldwide archaeological thought. Its second edition, according to Kenneth M. Ames, “would be the largest jewel in the crown of any scholar’s career”; although it is now nearly twenty years old, it continues to be heavily cited. Given this outsized influence, A History of Archaeological Thought might be regarded as emblematic of the uses and reception of the intellectual history of archaeology, more broadly (at least, of its best-known strain). This paper thus examines citations of Trigger’s second edition of A History of Archaeological Thought since its 2006 publication (as of this abstract, Crossref reports 430 citations). My aim is to ascertain how scholars are engaging with histories of archaeology—who is citing Trigger? What do they see fit to cite from Trigger? How does Trigger’s History of Archaeological Thought shape their work—or is it only cited cursorily? In contemplating scholars’ relationship to Trigger, I hope to better characterize the place—both potential and actual—of histories of archaeology within the scholarly (particularly, archaeological) discourse.

2133. THE LACK OF EDUCATION IN HISTORICAL METHODOLOGY AMONGST ARCHAEOLOGISTS AS AN ISSUE IN THE DEVELOPMENT OF THE HISTORY OF ARCHAEOLOGY

Contribution format: Oral  
Contribution authors: Crtomir Lorber (Independent researcher)

The history of archaeology is often overlooked as an academic subdiscipline, most notably in Central, Eastern and Southeastern Europe, which leads to lack of resources and career prospects. These issues mean students are often introduced to the history of archaeology as a historical lecture during their bachelor’s studies rather than as a possible field of specialization, which hinders their interest and capability to conduct research in the field, which is history in its’ methodology and research approaches not archaeology. We feel that this fact is often not considered or understood by archaeologists and historical methodology is often not a standard part of curriculum in archaeological departments. One could argue that this hinders the development of the history of archaeology as potential researchers are not introduced to this methodological distinction and the unique place of the history of archaeology in the wider context of archaeology. We propose showcasing these observations by analyzing our previous research, focusing on our PhD thesis, dealing with the history of the Archaeological Society of Yugoslavia (1949–1991). We intend to highlight the methodological and conceptual issues we faced during our research and hope to identify crucial methodological issues, most notably the lack of education of archaeologists when dealing with archival collections, constructing a taxonomy of historical sources and lack of intuitive understanding of the relationships between different types of written historical sources. Through this deconstruction of a research project dealing in the history of archaeology, specifically in the history of a multi-national archaeological association, we hope to support an argument that any strategy which seeks to improve the standing and prospects of the history of archaeology must include an approach to include its methodological principles into the methodology curricula of modern archaeological departments.

2346. (OVER)LIVING THE HISTORY OF ARCHAEOLOGY: MEMORIES, EMOTIONS, FEELINGS AND (IN) VISIBILITIES

Contribution format: Oral  
Contribution authors: Ana Cristina Martins (IHC-Universidade de Évora / IN2PAST)

Unlike in other European contexts, the history of archaeology has gained some ground in Portugal, albeit very gradually and timidly. It has been incorporated into university archaeology courses and led to the creation of specific working groups in research units. However, only one researcher continues to devote herself almost exclusively to the history of archaeology, possibly because most archaeologists, especially older generations, see the history of archaeology as restricted to drawing up ‘State of the Art’ academic essays. This position results, first and foremost, from a lack of knowledge about the polysemic and polyphonic role that the history of archaeology must play in the different layers of archaeological activity itself. In this sense, the efforts made in recent years to demonstrate the importance of the history of archaeology in recovering the memories, emotions, and feelings of different actors in the whole process of producing archaeological knowledge and heritage are beginning to bear fruit. This is especially true as it seeks to implement a truly transdisciplinary exercise, bringing together local and regional curiosities, interests, and needs, and in this way, also contributing, among other things, to increasing the self-esteem of individuals and communities and giving voice to different types of invisibility. This effort is beginning to be translated into master’s dissertations, doctoral theses, temporary exhibitions in museums and elsewhere, and research projects, most of which are part of ‘citizen science’ actions. With this paper,

we, therefore, intend to present success stories in this field and reflect on the extent to which the survival of the history of archaeology will depend on this logical and desirable relationship with the present of each geography, assisting in its sustainable development, always in close collaboration with other areas of knowledge and representatives of civil society.

602. A PURPOSE FOR THE HISTORY OF OUR DISCIPLINE

Contribution format: Oral  
Contribution authors: John Carman (University of Birmingham)

This paper poses a simple question: what is the study of the history of archaeology for. This is not a question to ask lightly, and it is not posed here to suggest that we should not study the past of our field. Rather, it goes to the heart of any field of study that is carried out professionally and (largely) at public expense. It is related to the larger question of what archaeology itself is for – what does it provide to the world that is not otherwise available. Recent work suggests that archaeology is more than the study of the past, although it is that as well. Instead, it is offered as a field that matters in the world because it provides a model for the kind of interrogative approach to the world that is vital for a thriving public realm and especially to the creation and maintenance of progressive and democratic ways of life as promoted by organisations such as the EAA. The paper will suggest how the abandonment of assumptions about how the field came about and what it concerns can indicate the significance of studies of its past and present to its development in the future.

2200. BEYOND THE FIELD: DISCUSSING CHALLENGES IN STUDYING THE LEGACY OF OLD CYPRIOT EXCAVATIONS

Contribution format: Oral  
Contribution authors: Francesca Meneghetti (University of Cyprus)

Obsolete archaeological practices and poor field documentation often leave old excavations understudied and poorly published. Moreover, a discipline’s belief that equates archaeology to digging dismisses studying the history of archaeology as a vital part of normal archaeological practice. Researchers also feel intimidated to approach old excavations and rehabilitate their legacy data due to general academic disinterest, limited funding, and further institutional support. These issues further enlarge research gaps and marginalise scholars working on legacy archaeological data and, more generally, the history of archaeology. Enkomi and Athienou-Bamboularitis Koukounninas are two Late Bronze Age (1750-1050 BCE) sites namely dug by a French (1934-1973) and Israeli mission (1971-1972). Despite their archaeological significance, both for reconstructing the Late Bronze Age Cypriot society and material culture, and the history of archaeological explorations on the island, these sites, the history of their excavations, and their results remain severely under-published and understudied. Moreover, they have been located since 1974 in the occupied part of Cyprus and the buffer zone, respectively, and are, therefore, inaccessible to new archaeological field enquiries. This further calls for scholarly approaches that go beyond field archaeology and are more related to the history of archaeology. The paper reviews how the integration of archive and museum archaeology is beneficial to studying the history of archaeological explorations. It analyses archival material from the 1958 season at Enkomi and the Israeli mission at Athienou and discusses the challenges of studying the history of old Cypriot excavations and their legacy data. The aim is to shed light on the history of foreign archaeological excavations in Cyprus and their excavation practices, how they (mis)shaped the understanding of the Cypriot past, and to increase research interest in this archaeological subdiscipline.

808. THE NECESSITY FOR AN ARCHAEOLOGY OF ARCHAEOLOGY

Contribution format: Oral  
Contribution authors: Gert Van Wijngaarden (University of Amsterdam)

The history of archeology often takes the form of narratives on great discoveries and influential persons, including biographies. See for example the great book by Brian Fagan in 1978: Quest for the Past. In addition, there have been several important studies on the theoretical background and paradigm shifts in archaeology, such as the seminal works by Bruce Trigger and Matthew Johnson. Also, we have seen studie. focusing on the political and social orientation of archaeology, such as that by Margarita Diaz-Andreu. What has been lacking is a material approach in the history of archaeology. In a successful session at the EAA of 2024 we explored the ways in which the material remains of old excavations can shed light on the production of knowledge in the field. Excavations consist of series of choices, which are to some extent determined by academic goals and predetermined strategies. However, due to the nature of a site and its context, excavations can hardly be considered controlled research contexts. There are many physical factors that influence decision making in the field: weather, tools, sloping, vegetation, hardness of soils, presence of subterranean walls etc. The remains of old excavations can inform us about what actually happened in the field. In this paper, I will discuss the possibilities and limitations when investigating remains of old excavations. Using examples from the Amsterdam Troy Project, I will give various examples where



the material remains at the site of Troy in Turkey give complementary information to archives and publications. I will argue that a material approach is necessary to understand the knowledge produced during excavations.

**376. PAST EXPLORERS, FUTURE MINDS: ENGAGING YOUNG AUDIENCES WITH THE HISTORY OF ARCHAEOLOGY**

**Contribution format:** Oral  
**Contribution authors:** Bonnie Nilhamn (Helsinki University)

The history of archaeology is a valuable tool for engaging the public and encouraging curiosity, yet its presence in education remains limited and often focused on discoveries rather than their historical contexts. This paper discusses how I use findings from Berenice Troglodytica (Berenike) and the stories of its early explorers in my teaching to help children understand how past ways of thinking—about archaeology, exploration, and the world—continue to affect us today. By portraying early explorers not just as historical figures but as individuals shaped by their time, their stories become more tangible and meaningful to younger audiences. Berenike, an important Red Sea harbour founded by Ptolemy II in 275 BC, has long fascinated scholars. Identified in 1541 by João de Castro and later rediscovered by Giovanni Battista Belzoni in 1818, it attracted numerous 19th-century explorers. More recent excavations (1994–2025) have revealed extensive trade networks, religious diversity, and a pet cemetery. My work at the Isis Temple (2015–2025) has shown that this temple serves as a historical time capsule, preserving ancient remains alongside traces of early explorers, looters, and archaeologists—offering insight into their presence and activities. While many recognise the artefacts these early explorers moved to European museums, fewer are aware of the traces left at excavation sites—marks revealing perspectives, values, and colonial mindsets of their time. Integrating these remains and historical narratives into teaching shows how the history of archaeology can extend beyond academic research and engage wider audiences. Presenting archaeology to young audiences requires avoiding the antiquarian trap of focusing only on “artefacts.” It is not the golden mask that will be remembered or that inspires future archaeologists, but the adventure surrounding it. Making archaeology accessible and linking past worldviews with present practices ensures its continued relevance.

**109. PLASTER CAST MUSEUMS IN THE HISTORY OF ARCHAEOLOGY: FROM GATEKEEPERS OF THE CANON TO GATEWAYS TO ARCHAEOLOGICAL NOVELTIES**

**Contribution format:** Oral  
**Contribution authors:** Agnes Garcia-Ventura (Universitat Autònoma de Barcelona)

Plaster cast museums have been mainly considered from art history, heritage studies and the history of collections, and only sporadically they have been considered in the framework of the history of archaeology. However, they were privileged gateways to trends and archaeological novelties. Furthermore, they were nurtured by academic networks involving archaeologists. Given these circumstances, I defend that a historiographical approach to plaster cast museums has much to offer to the history of archaeology. In this communication I will reflect on the potential of plaster cast museums to provide new sources and new research themes to the history of archaeology on the basis of two case studies. First, I will discuss the case of the Olympia sculptures which were unearthed during the archaeological campaigns of 1875 and 1877, and whose plaster casts reached the “Museo de Reproducciones Artísticas de Madrid” as early as 1881. Second, I will focus on the stele of Hammurabi’s Law Code, rediscovered in 1901-1902, and on its early dissemination in Spain through the press. Besides, the commission of its plaster cast for the “Museo de Reproducciones de Bilbao” in the 1930s will allow us to see how an archaeological novelty became, in few years, part of the canon in a country, such as Spain, without a tradition on ancient Near Eastern studies at that time. With these two case studies I aim to show that plaster cast museums were much more than mere transmitters of the canon: they were also privileged gateways to trends and archaeological novelties, two crucial themes to be analysed in the light of the history of archaeology, and so far neglected.

**455. INTERNATIONAL/UNIVERSAL EXHIBITIONS IN EUROPE AND THEIR IMPACT ON THE KNOWLEDGE AND DISSEMINATION OF ARCHAEOLOGICAL DISCIPLINE (19TH-20TH CENTURIES)**

**Contribution format:** Oral  
**Contribution authors:** Santiago Olcina-Lagos (University of Alicante) – Trinidad Tortosa-Rocamora (Spanish National Research Council)

The Universal/International Exhibitions, held in Europe and America during the mid-19th and early 20th centuries, were significant events in which each country presented its most important industrial, scientific and artistic innovations, as well as its traditions and the most representative elements of its identity as a nation. In this sense, archaeology played an important role in the representation of those countries on the world stage. It was used as a tool for the elaboration of their historical discourses. Furthermore, international congresses were organised at these Exhibitions, where not only new discoveries were presented but also the new ‘forms and contents’ of the discipline were debated, turning these events into true forums for scientific debate. However, despite the

interest of this aspect, since the 1980s, research on the Exhibitions has generally focused on providing answers to questions related to technical and architectural innovations, etc., relegating the involvement of the archaeological discipline to studies with specific objectives and perspectives. In the last few decades, the granting of several national and regional research projects in Spain, led by the Institute of Archaeology of Mérida-CSIC, has allowed us to broaden our focus towards the analysis of the evolution of archaeology in these Exhibitions. This has initiated an innovative line of research -begun at the Spanish School of History and Archaeology in Rome and currently consolidated-, composed of an international group of researchers (Spain, France, Italy and Portugal) and with an exnovo methodology that is offering us excellent results on the dissemination and treatment of archaeology in these important forums of knowledge. In the following presentation, we will analyse the progress of this line of research, present its most relevant results and its challenges and future objectives.

**2435. HISTORIES OF ARCHAEOLOGY BEFORE ARCHAEOLOGY - THE WORLD OF EARLY MODERN ANTIQUARIANISM**

**Contribution format:** Oral  
**Contribution authors:** Kirsten Eppler (Gotha Research Centre of the University of Erfurt)

Most Histories of Archaeology deal with archaeological theory or practice in the 19th and 20th century, and occasionally even in the 18th century. Using specific examples of early antiquarian and archaeological practices of the 17th and 18th centuries, this article aims to show how both the concept of praxeology used by the historical sciences for the analysis of early archaeological activities and concepts of the history of ideas for researching the emergence of early notions and theories about prehistorical objects and their original contexts can be made fruitful in order to write other histories of knowledge of archaeologies before today’s often Eurocentric archaeology. The paper argues that since humans have encountered and have been surrounded by archaeological objects to a greater or lesser extent at all times, the term archaeology in its current definition is too narrow and cannot encompass all archaeological movements or impulses in the past. How did scholars, priests and collectors in the early modern period classify these objects, integrate them into their collections, study them and engage in scientific exchange about them? What did the primary finders, like farmers or workers do who partially integrated those objects into their everyday lives, using e.g. Bronze Age urns as containers for swept-out fire ashes, or putting them over posts of their fences to protect the wood from weathering, at the same time defending the area inside the fence from evil in the sense of a cultural or religious practice? Why were early medieval tree trunk coffins or fossilized mammoth teeth reinterpreted as relics and thus religious symbols. In early modern times, such practices and ideas did not have to exist permanently or be constantly developed further, but could emerge, be further developed or disappear again like little bricks of knowledge or particles of ideas floating in space.

**61. THE CONTRIBUTION OF ARCHIVE SOURCES IN THE RECONSTRUCTION OF ARCHAEOLOGICAL CONTEXTS: THE CASE OF GEORG ZOEGA**

**Contribution format:** Oral  
**Contribution authors:** Gianluca Cabula (Tor Vergata University of Rome)

Often blamed for its mere “cultural history” approach, the history of archaeology has instead proved particularly useful for the reconstruction of lost archaeological contexts, providing documents that can add valuable information to archaeological maps and current excavation data. In this perspective, the study of antiquarian sources is not only an important chapter in drawing a “social” history of archaeology, but has been able to dialogue with field archaeology to complement its visions. In the last two decades, this has been particularly true, for instance, for certain contexts of Latium (Anzio, Tivoli, Ostia, etc.), whose knowledge has been significantly enriched by historical studies. The largely unpublished masterpiece by the Danish archaeologist Georg Zoega, “The Ancient Bas-reliefs of Rome” (1808), of which hundreds of manuscripts are preserved in Copenhagen, is an emblematic case study of evidence that can both depict the political and cultural environment of the early Restoration and at the same time help reconstruct destroyed or forgotten landscapes of ruins and collections.

**378. HISTORY OF ARCHAEOLOGY IN EGYPT: RECENT TRENDS, CURRENT RESEARCH, AND CHALLENGES**

**Contribution format:** Oral  
**Contribution authors:** Maximilian Georg (Austrian Academy of Sciences)

My paper analyses how the history of modern archaeology in Egypt, commonly held to have begun with Napoleon Bonaparte’s Egyptian expedition in 1798–1801, has developed since about 2010. After Egyptology had long neglected its history, the latter has now become a relatively vibrant field driven by Egyptologists and archaeologists as well as historians, anthropologists, and other disciplines, and by international as well as Egyptian researchers. Topics include archaeologists and other individuals involved; individual archaeological sites and projects; Egyptological institutions in Egypt and abroad; the legislation governing Egyptian antiquities; and the antiquities’ reception and “use” in Egypt and abroad. My paper discusses the field’s central themes, key publications and events, sources



and archives, ongoing projects, but also shortcomings and problems. One important trend is the shift away from Western archaeologists towards Egyptians involved in archaeology, also as excavation workers. These have been essential for archaeology but long been invisible in publications, due to colonial work structures and a lack of sources. In recent years, however, information has been gleaned from traditional archives; new, Egyptian archives have been discovered; and today’s archaeological workers have shown active interest in the history of their ancestors in the same profession. Such research may contribute to the “decolonization” of Egyptology, since the latter emerged in the context of Western imperialism during the long nineteenth century. However, Egyptologists and historians of the discipline disagree on whether and how such a “decolonization” is possible or appropriate. One difficulty here may be a lack of exchange between the history of Egyptology/of archaeology in Egypt on the one hand, and on the other hand theories, methods, and fields such as reflexive archaeology, postcolonial studies, global history, and the wider history of science.

**1848. AN ONGOING INQUIRY: AN INTERSECTIONAL ANALYSIS OF WOMEN IN THE HISTORY OF ARCHAEOLOGY**

**Contribution format:** Oral  
**Contribution authors:** Carito Tavera-Medina – Tianyi Dong (Universitat de Barcelona) – Fedra A. Pizzato (University of Verona) – Jorge Del Reguero – Valentina Valiente (Universitat de Barcelona) – Margarita Díaz-Andreu (ICREA-Universitat de Barcelona)

Has research on the history of women in archaeology reached a standstill in the past decade? The first edited volumes on this topic were published in the 1990s and 2000s. However, the apparent decline in interest during the 2010s suggested that the subject had been exhausted. In this paper, we argue that, far from being complete, this field still holds significant potential for further exploration. Firstly, there is considerable room for expanding the geographical scope of the discussion. Early debates, primarily during the periods mentioned above, remained largely focused on a few English-speaking countries in the Western world, leaving the contributions of women in other regions overlooked. This paper examines how gendered historiography has evolved in regions where such approaches have only gained traction in recent years. In particular, we explore new research from regions like Latin America, China, and countries such as Italy. Moreover, new methodologies and perspectives are being applied to the study of women’s roles in the history of archaeology, often from an interdisciplinary perspective. Methodologically, we highlight the growing use of oral history and more rigorous archival research. In terms of perspectives, we emphasize the importance of interdisciplinarity, decolonial theory and moving beyond the “great women” narrative to explore the diverse practices women have been involved in, often uncovering hidden labor. We also address issues such as intersectionality, as well as credit theft. Our study is part of the ArqueologAs/Herstory project.

**1592. HISTORY OF KNOWLEDGE - MORE THAN JUST ANOTHER HISTORY? INSIGHTS GAINED FROM FOUR PROJECTS**

**Contribution format:** Oral  
**Contribution authors:** Katja Roesler – Kerstin Hofmann (Romano-Germanic Commission)

Archaeologists initially often only wrote so-called research histories; a more intensive examination of the history of archaeology only began with the development of the history of science. In recent years, however, there has been a shift from a more academic history of science to a more universally understood history of knowledge. This has also had an impact on the scope and objects of investigation, the embedding in (funded) research projects and interdisciplinary collaboration. Using four case studies, we would like to illustrate the role history of knowledge and its questions, concepts and methods can play in various institutionally anchored ancient studies projects: 1) a thesis on classification practices and discourse analysis of the academic school of the prehistoric archaeologist Jens Lüning (2006-2012); 2) the change in the embedding of the history of science and knowledge in the research of the Berlin Cluster of Excellence TOPOI (2007-2019); 3) an experimental study on implicit knowledge in the context of sorting celtic coins, conducted in the ClaReNet-Project (2021–2023), 4) research on history of knowledge as an integral part of the long-term project “Disiecta Membra. Stone Architecture and Urbanism in Roman Germany” (2023-2046). These studies deal with knowledge practices, technologies, research traditions, the development of terminology and specialist languages as well as with thought collectives in the sense of academic schools. They are characterized by a stronger link to specific research that makes the interplay of theory and practice, epistemologies and empiricism in knowledge production more comprehensible and also can have direct effects on the respective fields of research. Histories of knowledges can be essential for more reflective archaeological research and for better understanding the recent ‘digital revolution’, but alongside new perspectives there are also numerous challenges, which we would like to discuss.

**240 URBANSCAPE AND RURALScape TRANSFORMATION DYNAMICS BETWEEN THE END OF THE ANCIENT WORLD AND THE MIDDLE AGES: NEW METHODOLOGICAL APPROACHES**

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Regular session  
**Session keywords:** City, Rural, Late Antiquity, Medieval, Methodology, Landscape archaeology  
**Session organisers:** Raquel Bujalance Silva – Marta Torres Cortés (Inaph - Universidad de Alicante) – Nicola Delbarba (Università degli Studi di Verona)

**SESSION ABSTRACT**

The session aims to delve into the study of territorial occupation in Europe, the Near East, and the Maghreb between the 4th and 13th centuries, with a particular focus on the interaction between rural and urban settlements and their development over time. The dynamics between these two types of settlements evolved and are reflected in the configuration of the landscape and its components: communication routes, urban planning, and the geographical environment, among other aspects. These transformations are influenced by various contextual factors, such as cultural, economic, and political elements. This line of research can be approached through diverse multiscalar methodological perspectives that have been refined over the years, ranging from traditional methods such as archaeological excavations to more innovative techniques like geophysical surveys and virtual reconstructions. Advances in these methodological tools offer a richer and more detailed understanding, not only of the relationship between urban and rural areas in Late Antiquity and the Middle Ages but also of the administrative network that structured the territory. The session welcomes studies exploring these issues, with a special emphasis on the methodological approaches employed and the results derived from their application.

**CONTRIBUTION ABSTRACTS**

**62. MULTISCALAR APPROACHES TO THE ROMAN AND LATE ANTIQUE COUNTRYSIDE IN ITALY. THE CASE OF ORATORIO DI SAN VINCENZO (SESTO CALENDE)**

**Contribution format:** Oral  
**Contribution authors:** Emanuele Intagliata – Lorenzo Zamboni – Amedeo De Lisi (University of Milan)

The scope of this paper is to investigate the benefits and challenges of a multiscalar approach for the study of rural settlements using the site of Sesto Calende – Oratorio di San Vincenzo as a case study. The site, which is situated in northern Italy by the Ticino River and along a crucial commercial artery connecting Milan to Lake Maggiore and the Alps, has been known since the 1980s. Already then, excavations within and in close proximity to the church of S Vincenzo yielded archaeological evidence that confirmed the occupation of the area from the 1st century AD to at least the end of the 11th/beginning of the 12th century. New excavations conducted by the University of Milan at this site in 2024 have concluded that the area was occupied as early as the late republican period. By integrating geophysics and geospatial analyses with these excavations, the team has also been able to cast light on the site’s previously unknown topography and contextualise the remains using a *longue durée* and regional-wide perspective.

**1796. BETWEEN INCAPACITY AND RESILIENCE: THE AGENTS OF STREET OCCUPATION AND PRIVATIZATION IN ROMAN CITIES OF THE IBERIAN MEDITERRANEAN**

**Contribution format:** Oral  
**Contribution authors:** Manuel Cañadas (University of Alicante)

Among the multiple urban change phenomena that took place in Roman cities over time, the occupation and privatization of streets is one of the processes that most directly materializes the transformations of Roman society between the Classical and Late Antiquity periods. Based on this premise, and with the purpose of understanding how the road networks of Roman cities along the eastern coast of the Iberian Peninsula evolved, this paper aims to present the results of a comparative study, based on the analysis and processing of a set of archaeological data which prove the occupation of sidewalks and roads was a fairly common and early reality in the development of Roman urban communities. Going one step further, this study intends to go beyond the material evidence of this urban change phenomenon to explore the social and economic meaning that explains why certain domus appropriated the porticoes, privatizing part of them, or why some streets were closed to vehicular traffic and became reduced to mere pedestrian passageways. In this sense, some hypotheses regarding the roles of different social groups as actors in the road occupation process are presented, focusing on the agency of municipal authorities and their capacity to maintain urban structures in the Late Antiquity. Whether regulated or spontaneous, the occupation of streets did not lead to their definitive disgregation, with many of them keeping their layout and



function; thus, the final part is dedicated to assess the «resilience» of the urban network in the cities under study. To achieve the proposed goals, spatial analysis methodologies -such as Space Syntax and Geographic Information Systems (GIS)- constitute great potential techniques to advance in socio-urbanistic studies.

112. TO STAY OR TO MOVE? CHANGES IN THE SETTLEMENT PATTERN BETWEEN LATE ANTIQUITY AND EARLY MIDDLE AGES IN ALBACETE

Contribution format: Oral  
Contribution authors: Marta Torres Cortés (University of Alicante)

Traditionally, Archaeology in the Peninsula Iberica has focused either on Roman rural settlements, generally villae, or on Visigoth villages or cities. However, there were a few studies interested in understanding or analysing where people lived during the time between the Late Antiquity and the Early Middle Ages. Did the abandon the Roman villae and villages? Did they move to new settlements in altitude such as castum? Or are new settlements founded on the plains similar to the Visigoths hamlets documented in other parts of Europe? Currently, there are several research projects that try to answer these questions. This is the direction that this communication will follow. We will try to analyse the patterns of settlement in the rural world during the transition between the Late Antiquity and the Early Middle Ages. To do so, we will focus on four cases of study situated in the current province of Albacete: Camino Viejo de las Sepulturas (Balazote), Agra, Zama and Torre Uchea (Hellín). These examples will help us to understand whether in the rural world there is evidence of a break in settlement patters, or on the contrary there is evidence of continuity in the use of settlements with transformations of these spaces. Moreover, we will try to look for some of the causes that may explain the settlement patterns in this transition period.

1547. CHRISTIAN TOPOGRAPHY OF MAURETANIA SITIFENSIS BETWEEN THE 4TH AND 7TH CENTURIES AND ITS RELATIONSHIP WITH THE SETTLEMENT NETWORK

Contribution format: Oral  
Contribution authors: Michal Kuzminski (Pontifical Institute for Christian Archaeology)

The presentation examines key aspects of territorial changes in the province of Mauretania Sitifensis, established by the administrative reforms of Emperor Diocletian. The research focuses on the evolution of the province's Christian topography, analyzing its development in relation to various factors and broader shifts in settlement patterns between the 4th and 7th centuries. Geographic Information Systems tools will be employed to analyze and visualize these transformations. For this analysis, two comprehensive databases were created: one containing all known archaeological sites within the province and another specifically documenting sites with evidence of Christian presence. Each site was categorized by key attributes, including geographical location, chronological range, and natural conditions such as altitude and soil type. Additionally, distances from water sources and major communication routes were considered to assess the most favorable conditions for settlement development in the province. To evaluate these conditions, the weight-of-evidence method was applied. This approach uses the main factors as tools to calculate the areas with the highest likelihood of settlement presence. The same methodology was also applied to Christian sites to determine how factors like proximity to episcopal seats or administrative centers may have influenced the establishment of Christian communities at specific locations. In North Africa, many ancient dioceses are only documented in written sources. By comparing spatial analysis data for both general settlements and those with Christian presence, the study will identify areas with the highest likelihood of locating episcopal seats attested by historical records but not yet archaeologically confirmed. These areas are characterized by a relatively low number of episcopal seats compared to settlement density, highlighting potential locations for further archaeological investigation.

786. FROM THE CAPITAL OF GALLAECIA TO METROPOLITAN DIOCESE IN THE VISIGOTHIC KINGDOM: BRACARA AND ITS TERRITORY IN LATE ANTIQUITY

Contribution format: Oral  
Contribution authors: Diego Machado (UAUM | Lab2PT | Laboratório Associado IN2PAST | Universidade do Minho) – Francisco Folgueira Ríos (Universidade de Santiago de Compostela)

Throughout Late Antiquity, the city of Bracara (Braga, Portugal) not only experienced urban and cultural transformations but also established a close and dynamic relationship with the surrounding territory. With Diocletian's administrative reform, the northwest of Hispania was united into the new province of Gallaecia, with Bracara as its capital. This promotion resulted in increased investment in the housing of the political elites within the city and the territory. The Suevic conquest in 411 brought a new political reality to the city, which became its capital, but it also represented significant social and economic continuities, evidenced by the preservation of domestic architecture and the exploitation of the region's resources, rooted in Roman traditions. From the 6th century onwards, however, archaeological evidence shows a significant reduction in preservation, which complicates the study of the changes that occurred in the city. Drawing on the actions of the bishops of Bracara, particularly

St. Martin (6th century) and St. Fructuosus (7th century), interpretations of Bracara during this period highlight substantial social and cultural continuities. These were facilitated by the role of the Bracara diocese in maintaining urban life, as well as its administrative and economic functions, supported by the organisation of the diocesan settlements. The relationship between the city and its territory would be reflected in the establishment of Christian centres in the urban peripheries, such as churches and monasteries, as a strategy to consolidate the Metropolitan's presence and influence over the territory. This paper aims to reassess this interpretative framework in light of recent advances in the study of Bracara and its territory. The integration of diverse data enables the construction of a new narrative that rethinks the processes of change within the city and its relationship with the territory, revealing a more complex picture of Late Antiquity in the northwest of Hispania.

2169. THROUGH EIO AND ILICI: APPROACHING EARLY MEDIEVAL SETTLEMENTS DYNAMICS USING MOBILITY AND VISIBILITY ANALYSIS

Contribution format: Oral  
Contribution authors: Victoria Valero – Marta Cortés (University of Alicante)

The interrelation of the habitat and the individual has generated numerous questions that Landscape Archaeology has tried to answer. The why, how and when come to our mind when observing the settlement in the immediate surroundings of ancient cities. The cases of Eio (Tolmo de Minateda, Hellín, Albacete) and Ilici (La Alcudia, Elche, Alicante), situated in two different landscapes but deeply intertwined with each other, are not an exception. Both of them were occupied since the Bronze Age and they played a key role in Antiquity as Roman cities, focusing our investigation on their role during the Early Medieval period. For decades, the two urban areas have been the focus of research, knowing part of their internal dynamics within the political and social context throughout the centuries in which they were populated. However, what were the dynamics of occupation between the city and its immediate surroundings? Did these cities work as the backbone of the territory or were they just landmarks in the landscape. In this communication we will try to answer those questions that the inhabitants of a given landscape leave us in their passage through it. It is proposed to make a new approach to the rural settlement in the hinterland of Eio and Ilici during the High Middle Ages through Geographical Information Systems (GIS) tools using specifically some of them related t. mobility analysis (MADO) and visibility analysis. By doing so, we will gain a more comprehensive understanding by incorporating two additional pieces of the puzzle, enabling us to better grasp the relationships between the various settlements across the two territories. This investigation highlighted the amount of possibilities that the new technologies, specifically the network and visibility analysis, have to study some archaeological data that with traditional methods will be almost impossible due to its limitations.

242 NEW DEVELOPMENTS AND PERSPECTIVES IN THE METHODOLOGICAL APPROACH OF ARCHAEOENTOMOLOGY

Session theme: 3. Exploring methods in research, education and communication  
Session format: Discussion session  
Session keywords: Archaeoentomology, Quaternary entomology, Methodology, Funerary Archaeoentomology, Palaeoecology  
Session organisers: Pedro Henríquez-Valido (Universidad de Alcalá) – Nick Schafstall (Nature Research Centre (Vilnius)) – Giuseppina Carta (Università degli Studi di Genova)

SESSION ABSTRACT

Archaeoentomology has regained popularity in recent years as a relevant discipline for the in-depth interpretation of archaeological contexts. This discipline, derived from forensic entomology and Quaternary entomology, is based on the analysis of insect remains to obtain data on a wide variety of questions. The most significant data they can provide include: - Reconstruction of past ecosystems, such as details about the landscape that surrounded a settlement or burial ground.- Evidence of site abandonment, settlement patterns, and ecological stresses - Evidence surrounding burials, such as the season of mortuary deposition and the environment in which the deposition took place, as well as possible post-mortem movements of the corpse. - Identification of human subsistence strategies, including food storage and waste management. - Human-animal interactions and the spread of ectoparasites and diseases. However, despite their increasing relevance, there is still a notable scarcity of archaeological sites that systematically collect samples to allow the extraction of entomological remains. This scarcity of data is a pressing issue that limits the scope of archaeoentomological studies and, thus, their potential to contribute to the knowledge of the formation of the archaeological record. Your work in this field is crucial to addressing this issue. The aim of this session is to: - Address and analyse methodologies related to collecting samples in archaeological contexts, considering the particularities of each site and conservation conditions. - To encourage debate on the minimum criteria to guarantee a reliable archaeoentomological analysis. - To discuss



the techniques for extracting, identifying, and quantifying arthropod remains. This Discussion session aims to generate new perspectives and approaches to broaden the knowledge from entomoarchaeology in any archaeological context. The aim is to gather contributions from different regions, periods and types of archaeological sites to encourage collaboration between specialists to generate and improve methodological criteria in archaeoentomological analysis.

CONTRIBUTION ABSTRACTS

2019. ARCHAEOENTOMOLOGICAL STUDY OF THE CRYPT OF SANTA MARIA MAGGIORE (VERCELLI): INSIGHTS INTO BURIAL PRACTICES AND DECOMPOSITION PROCESSES

**Contribution format:** Oral  
**Contribution authors:** Giuseppina Carta – Aurora Nigro (Department of Earth, Environment and Life Sciences (DISTAV), University of Genoa) – Roberta Fusco – Marta Licata (Department of Biotechnology and Life Sciences, University of Insubria) – Cecilia Bertoletti (Department of Earth, Environment and Life Sciences (DISTAV), University of Genoa) – Stefano Vanin (Department of Earth, Environment and Life Sciences (DISTAV), University of Genoa | IAS-CNR, Genoa)

Funerary archaeoentomology applies the theories and methods of forensic entomology to archaeological contexts, particularly to funerary settings. The knowledge about the entomofauna (biology, ecology, and distribution) from archaeological sites, provides valuable informations about the post-mortem history of the buried individuals. The analysis of entomological remains helps reconstruct key aspects of burials, including the season of death, pre-burial exposure, post-mortem relocations, and environmental conditions. The presence or absence of insects may indicate the use of repellent substances, while certain taxa provide evidence of wooden coffins or offerings. Insects colonize corpses at different decomposition stages, leaving identifiable traces. In Italy, this field has gained significant interest, with several burials studied through a multidisciplinary approach. This study aims to describe the entomological community associated with the burials located in the crypt of the Church of Santa Maria Maggiore in Vercelli (Northern Italy 18th – early 19th centuries). Sediment and other materials collected from the burials were sieved, and entomological remains were isolated and identified using stereomicroscopy, dichotomous keys, and reference collections. Diptera puparia were the most abundant specimens, especially those belonging to the Muscidae and Phoridae families. These taxa are characteristic colonizers of bodies buried in hypogean or underground environments. Additionally, adult specimens of Coleoptera were identified, including xylophagous species from the Curculionidae, Mycetophagidae, and Ptinidae families, which caused damage to the wooden coffins. Other beetles, such as those from the Cleridae and Histeridae families, were more directly associated with the decomposition of organic matter. Finally, the presence of Lepidoptera specimens from the Tineidae family, as well as a Chrysomelidae specimen, was linked to clothing and offerings or environmental elements. This study highlights the role of archaeoentomology in reconstructing burial conditions and post-mortem processes, offering valuable contributions to our understanding of funerary practices and environmental factors influencing decomposition in hypogean contexts.

2024. BUGGING THE ABANDONED: TRACING ENTOMOFAUNAL CHANGES IN AN APUAN ALPS SHELTER

**Contribution format:** Oral  
**Contribution authors:** Matilde Stelli – Claudia Sciuto – Gabriele Gattiglia (MAPPA Laboratory, Department of Civilizations and Forms of Knowledge, University of Pisa) – Linda Abenaim – Augusto Loni (Department of Agricultural, Food and Environmental Sciences, University of Pisa) – Philip Buckland (Environmental Archaeology Laboratory, Umeå University)

The Apuan Alps, in northwestern Tuscany, were historically shaped by mining, agricultural, pastoral, and forestry activities. However, since the post-World War II period, these mountains have undergone significant depopulation, leading to the abandonment of land and structures. Archaeoentomology provides valuable proxies for reconstructing the history of this landscape. This study focuses on an abandoned shelter in Pomezzana, located beneath a natural cave, where two shovel tests were conducted. Soil samples collected from different stratigraphic layers were processed to recover insect fossils using standard techniques: organic components were separated from inorganic material through water flotation with a 300 µm sieve, and the resulting fractions were examined under a low-power binocular microscope. Identified insect fossils were compared with modern reference collections. Additionally, six pitfall traps were placed inside and outside the shelter to investigate the present entomofauna within the abandoned structure. By comparing insect assemblages from different layers and pitfall traps, this research explores changes in entomofauna across the site’s phases of use. The results provide insights into the history of the archaeological site and, more broadly, contribute to understanding human-environment interactions in an area shaped by abandonment.

2509. THE TAPHOMUMMY PROJECT: EXPERIMENTAL APPROACH TO FUNERARY ARCHAEOENTOMOLOGY FOR THE UNDERSTANDING OF INDIGENOUS CANARIAN CAVE BURIALS

**Contribution format:** Oral  
**Contribution authors:** Pedro Henríquez-Valido (Área de Prehistoria - Universidad de Alcalá) – Jean-Bernard Huchet (UMR 5199/CNRS – PACEA, University of Bordeaux | UMR 7209/Archéozoologie, Archéobotanique: sociétés, Pratiques et Environnements, MNHN | UMR 7205/CNRS - Institut de Systématique, Evolution et Biodiversité) – Amelia Rodríguez-Rodríguez – Jonathan Santana Cabrera – Idaira Brito Abrante – Aitor Brito Mayor (G.I. Tarha. Dpto. de Ciencias Históricas. Universidad de Las Palmas de Gran Canaria)

Insects are crucial in cadaveric decomposition, although they are only considered when their preservation is evident. Nevertheless, they can provide crucial information to understand the funerary archaeological record better. In the Canary Islands, where the climatic conditions allowed the preservation of entomological materials, the indigenous population used caves to deposit their dead. However, there is debate about some issues regarding the funeral rite, such as whether or not the bodies were exposed to the elements for an indeterminate period of time before burial. In this work, the conditions of indigenous burials in caves have been recreated using traditional techniques to wrap a pig carcass in a vegetal bundle. During this experiment, samples were collected of insects that arrived around the cadaver from the first minutes of the deposit up to a year after the beginning. The results have allowed us to make contrasting hypotheses about whether the bodies were deposited immediately after death. For this, quantitative factors have also been taken into account, allowing archaeological deposits in caves to be reconstructed, both in the Canary Islands and other Palaearctic regions.

2520. SMALL PARTS CAN TELL A WHOLE STORY: INSECT REMAINS FROM A NEOLITHIC WELL IN EASTERN BOHEMIA

**Contribution format:** Oral  
**Contribution authors:** Nick Schafstall (Nature Research Centre, Quaternary Research Laboratory, Vilnius) – Petr Vrána (University of Hradec Králové, Philosophical Faculty)

A Late Neolithic well was discovered near the town of Klenice in northeastern Bohemia and subjected to a multi-proxy study, to find out more about the history of the well and its immediate surroundings. Pollen, plant macrofossils, sedaDNA and insect remains have been studied, but not all results are finalized yet. This presentation shows the results from the identification of beetles (Coleoptera) from three bulk samples from different depths within the infilled well. All three samples contained remains of dung beetles and granary weevils, but preservation of the remains differed considerably between samples. While at first around five liters of each sample were examined, later examination of the remaining volumes of sample rendered high additional numbers of insect remains from one of the samples, including better preserved specimens. The observations made during this study show how random sampling from archaeological deposits can affect the quality of the results.

1749. ARCHAEOENTOMOLOGICAL STUDY OF A REDUCTION BOX FROM THE CRYPT OF SANTA MARIA MAGGIORE (VERCELLI)

**Contribution format:** Poster  
**Contribution authors:** Giuseppina Carta – Aurora Nigro (Department of Earth, Environment and Life Sciences (DISTAV), University of Genoa) – Roberta Fusco – Marta Licata (Department of Biotechnology and Life Sciences, University of Insubria) – Martina Carlassara – Lucrezia Falchi – Alessia Santonastaso (Department of Earth, Environment and Life Sciences (DISTAV), University of Genoa) – Stefano Vanin (Department of Earth, Environment and Life Sciences (DISTAV), University of Genoa | IAS-CNR, Genoa)

This study focuses on the entomological analyses of a wooden reduction box containing the remains of two adult individuals, discovered in the crypt of the Church of Santa Maria Maggiore in Vercelli (Northern Italy 18th – early 19th centuries). The remains were placed on a pillow composed of plant-based materials, providing an environment favourable for the presence of various insect species. The entomological investigations highlighted the presence of dipteran insects belonging to the Phoridae and Muscidae (*Hydrotaea capensis*) families, which are typically associated with the decomposition process of buried bodies. However, the presence of many puparia of blow flies (Calliphoridae) and Muscidae of the genus *Muscina* reveals that the bodies were exposed before the burial, potentially as part of the funerary rituals. Additionally, beetles from the Curculionidae family (Cossoninae subfamily) were found, likely linked to the plant-based pillow and wood coffin structure. These beetles are known to be associated with plant decomposition and may provide important information to the environmental conditions and materials used in historical burial practices. The presence of mold, developed on the plant-based material but also on the remains is documented by the presence of mycetophilous species in the families Mycetidae



(Mycetaea subterranea) and Cryptophagidae (Cryptophagus sp.). The findings of this study contribute to the understanding of burial environments and post-mortem insect colonization, offering valuable data for forensic and bioarchaeological research. The identification of insect species associated with both decomposition and plant material degradation highlight the importance of entomological analysis in reconstructing past funerary practices and environmental conditions. These results not only enhance our knowledge of funerary archaeology but also emphasize the role of insect activity in the decomposition process within enclosed burial settings. Future research integrating entomological, botanical, and taphonomic analyses will be essential for a comprehensive interpretation of burial environments in historical contexts.

**2531. TRACING DEAD: ARCHAEOENTOMOLOGICAL INDICATORS OF DISTURBED FUNERARY CONTEXTS. THE CASE OF CUEVA DE LOS MURCIÉLAGOS OF ALBUÑOL (GRANADA, SPAIN)**

**Contribution format:** Poster  
**Contribution authors:** Pedro Henríquez-Valido (Universidad de Alcalá) – Jonathan Santana (Universidad de Las Palmas de Gran Canaria) – Rafael Martínez-Sánchez (Universidad de Córdoba) – Miriam Cubas Morera (Universidad de Alcalá) – Maria Herrero-Otal – Ingrid Bertin – Raquel Piqué Huerta (Universitat Autònoma de Barcelona) – Francisco Martínez-Sevilla (Universidad de Alcalá)

Cueva de los Murciélagos of Albuñol (Granada, Spain) is a karstic cave located 7km from the current coastline of the southeast of the Iberian Peninsula. The site is crucial in the Prehistory of the region due to the exceptional preservation of organic materials through desiccation. As a result of the extraction of bat guano during the first half of the 19th century, at least 68 individuals were discovered and distributed in different areas, but most of them are currently missing. However, some of the materials that attracted the most attention were the plant fibre and wooden based objects that likely accompanied the burials, which were dated to the Early and Middle Holocene (Martínez-Sevilla et al., 2023). Most of the archaeological superficial remains have been altered by different historical activities. To recognise the context in which the bodies were deposited, series of systematic sampling were carried out throughout the cave, generating a considerable number of new findings, including materials associated with archery dating from the Early Neolithic (Bertin et al., 2024). Archaeoentomological analysis of the sediments has revealed the presence of both cadaveric entomofauna, which could be directly related to the decomposition of the corpses, and other insects, which could be linked to the rest of the organic materials present in the cave. Among them, the puparia of Diptera (Calliphoridae: Calliphora vomitoria) and the exoskeletons of Coleoptera (Dermestidae: Dermestes sp.) stand out. Some of these puparium remains were dated between the 3rd and 4th millennia BCE, closely related with the baskets. Others were documented with human remains and were dated in the 10th millennium BCE. These data not only suggest the use of the cave as a funerary space since the Early Holocene. They also allow us to try to recognise the use of the spaces in an archaeologically disturbed context.

**243 OBJECTS, MOBILITY, AND CREATING BELONGING IN ARCHAEOLOGY: NARRATIVES REVISITED**

**Session theme:** 2. Intertwined Epistemologies: Transcending the Data – Theory Divide  
**Session format:** Regular session  
**Session keywords:** Materiality, Objects, Mobility, Belonging, Narratives  
**Session organisers:** Martina Seifert (University of Hamburg) – Ewdoksia Papuci-Wladyka (University of Warsaw) – Francesca Fulminante (University of Bristol | University of Roma Tre) – Giulia Pedrucci (Comenius University in Bratislava)

**SESSION ABSTRACT**

The mobility of people and objects and the related changes in social, political and spatial terms are a current subject of social debate that is as controversial in the present as it was in the past. In archaeology, research on wandering movements, migration or colonization has led to long-lasting narratives that have dominated concepts and interpretations in a stereotypical manner for decades. These include, for example, the so-called Dorian migration, the so-called great Greek colonization in the Mediterranean region or the so-called Romanization of provinces. The theoretical perspectives on migration and belonging range, for example, from the idea of acculturation to trans-locality or transtemporality. In light of the background outlined above, the session will address the question of how ancient societies produce, maintain and change belonging in the course of mobility and migration. We are looking for contributions that deal with the significance of materiality in the aforementioned contexts and the diverse overlaps of socio-spatial practice. This includes built materiality as well as objects that have been appropriated in new places and social spaces. Interdisciplinary contributions from all disciplines of ancient studies discussing different geographical areas and architectures or objects from different periods are most welcome.

**CONTRIBUTION ABSTRACTS**

**2412. A TALE OF TWO CITIES?: MARKERS OF MOBILITY AND ADAPTATION IN REPUBLICAN CENTRAL ITALY**

**Contribution format:** Oral  
**Contribution authors:** Melissa Ludke (Florida State University)

The Latin colony of Cosa was founded in 273 BCE within a seemingly “hostile” territory on the western coast of the Tyrrhenian Sea in central Italy. Despite the city being surrounded by Etruscan settlements, the promontory and future site of Cosa has remained absent of any prior habitation beyond a few tombs scattered on the hillside. As a result, early scholars dubbed the city a “typical ex novo colony” and one that emulated Rome in every way, including a model of classic ‘romanization.’ However, shortly after the colony’s establishment, it quickly began importing goods from the immediate region, especially Tarquinia, which continued into the second and first centuries BCE. Furthermore, while the relationship between Cosa and Rome has been thoroughly investigated, the connections between the colony, the territory’s Etruscan cities, and regional mobility have been relatively ignored. This research initially examines epigraphic evidence from the Republican period of Cosa. Then, the onomastic links between gentes associated with the colony and central Italy are compared to the import of regional products and export of Cosa’s coins, outside the direct purview of Rome. It is well known that the mobility of objects tends to emphasize the movement of humans. Thus, through a materiality approach, this paper argues that the appearance of regional goods at Cosa, and their intersection with the potential origins of these individuals, reflect the choices and motivations of Cosa’s early inhabitants, and its neighbors. Lastly, the results of this project ultimately indicate regional interaction and potential migration at a time when Cosa was thought to have been relatively isolated, as well as the colony’s attempts at integration through appropriation and adaptation within a well-established Etruscan territory.

**295. DOES CIRCULATION AND CONSUMPTION OF OBJECTS REFLECT CULTURAL, POLITICAL AND ECONOMIC NETWORKS BOUNDARIES? THE CASE STUDY OF EARLY ROMAN EXPANSIONISM**

**Contribution format:** Oral  
**Contribution authors:** Francesca Fulminante (Bristol University | Oxford University | Cambridge University | University Roma Tre) – Daniela Engelhart (Independent)

Is there a mark of Roman expansionism in the cultural and economic imprint of interaction and trade in Etruria and Latium vetus before and after the beginning of Roman expansionism? Do Etruria and Latium vetus work as separate blocks or connected units either before or after the conquest of Etruria from Rome? Which is the role in these interactions of cultural transmission and economic trade of the settlements of different degree of density or ranking? Does cultural transmission happen more easily and often in primary or secondary order settlements? Do primary settlements act as central places and re-distribution centres? By using Central Italy from the Final Bronze Age to Republican Period as a case study we will try to address these questions using a network exploratory approach. Our method will be based on the analysis and theoretical considerations in the paper of Nakoinz et al (2020). There, the typology and location of fibula are used to calculate an adjacency matrix to gain a network, on which to do further analysis on. In our case, we will build three comparable matrices, one from sites in Etruria, one from sites in Latium vetus and finally, one in which both regions are combined, with a much larger and more diverse number of types. With the created networks, Centrality measures, such as degree and betweenness, can then be calculated in order to get an insight into the interaction of the sites in the two different regions to answer the previously asked questions.

**2040. PERSPECTIVES OF BELONGING. THE URBAN DEVELOPMENT OF LILYBAEUM IN ANTIQUITY**

**Contribution format:** Oral  
**Contribution authors:** Aylin Güngör (University of Hamburg) – Mauro Lobrutto – Antonella Mandruzzato – Aurelio Burgio (University of Palermo)

Since 2005, the Universities of Palermo and Hamburg and the Parco Archaeologico di Marsala have been working together to explore the ancient city of Lilybaeum in Sicily. The foundation of Lilybaeum is documented in written sources in the years 397/396 BC, following the destruction of Punic Mozia under the leadership of Dionysios of Syracuse and the subsequent resettlement of the surviving population characterised by different groups. The western Sicilian sea fortress of Lilybaeum (Greek: Lilybaion) was an important base for the Carthaginians and Romans during the Punic Wars and was subsequently a flourishing Roman trading town. As a cultural centre between Sicans, Elymians, Punics and Romans, Lilybaeum is distinguished from other Sicilian and North African cities by its continuous settlement from the 4th century BC to the 5th century AD, which shows the historical importance of Lilybaeum in the context of north-western Sicilian cities. Therefore, Lilybaeum in particular provides an opportunity to consider the question of belonging and differentiation from a variety of perspectives. How do



the archaeological remains reveal belonging in the individual cityscapes and organisation of the city? How does the community create, maintain and change belonging? How does this affect the social space, and how does the cityscape transform over time with changing belongings? This paper further engages with the prevailing concepts within the research field. Since 2017, the DFG-funded project “Lilybaeum. Basic urban layout” has been engaged in the creation of an archaeological map of ancient Lilibeo/Lilybaeum in different time phases in order to reconstruct its development. This process facilitates the identification of different urban functional areas in the different phases, as well as the verification of the research narrative concerning a differentiable cityscape. This approach contributes to a comprehensive understanding of the urban landscape and facilitates the elucidation of its intricate layers.

655. WHERE THE DEAD BELONG. MULTILOCALITY AND AFFILIATION OF THE DEAD IN ANCIENT GREECE

**Contribution format:** Oral  
**Contribution authors:** Thorben Frieling (University of Hamburg)

Migratory movements of and the connections between population groups are closely linked. And even death cannot change these. Instead, new affiliations are formed: the deceased is now part of the afterlife but is still considered a part of the oikos and the responsibility of their relatives. Furthermore, they belong to the oracle of the dead – the nekyomanteion – when they are summoned for divination and guidance. Through rituals at these oracle sanctuaries, like at Tainaron and the Acheron, affiliations between the dead and the living emerge. The living migrate to the dead by means of the katabasis or nekyia, while the dead are grasped from the underworld to impart their wisdom on to the living. The same happens – though in a much less liminal setting – at the grave through sepulchral rites. The care for graves is an integral part of Greek society as elaborate grave stelai and painted pottery from the Archaic and Classical periods suggest. The dead is tended to even long after their death and takes part in these rituals – although as a silent actor. These ritual performances also create a group identity between the living through shared beliefs and ritualistic practices. Classical sepulchral scenes from Greek poleis in southern Italy show great resemblance to those found in the Greek motherland due to their shared heritage and relation as apoikiai and metropoleis. So shouldn't it be “Till Death do us unite” instead? Mobility and connections between dead and living can be assessed via the material finds at the oracle sites and analysis of pictorial scenes in which dead and living interact. Combining this with the definition of “belonging” as Joanna Pfaff-Czarnecka postulates – based on shared knowledge, goals and believes – creates the means to close in on an answer to this question.

873. REINTERPRETING BELONGING: THE TRANSFORMATIONS OF FEMALE FIGURINES IN RITUAL AND FUNERARY CONTEXTS

**Contribution format:** Oral  
**Contribution authors:** Giulia Pedrucci (Comenius University in Bratislava)

During a recent research trip to Athens, I examined several kouroi/terracotta figurines—or more precisely, kourophoroi—in local museum collections. These terracottas were not originally intended to depict figures carrying infants. Instead, they were later modified, with crudely hand-modeled infants added to their laps or feet. Some even feature unnaturally extended arms to accommodate this secondary adaptation. While the exact provenance of many remains unknown due to their status as collector's items, they seem to be Attic productions, yet some of them have been found beyond Attica, attesting to their movement across different regions. This phenomenon of post-production reinterpretation speaks to the fluidity of meaning and belonging in material culture. The figurines, initially representing enthroned women in a hieratic posture—possibly goddesses, yet distinctly non-maternal ones—were later recontextualized to embody nurturing roles. A parallel case emerges in Hellenistic-period tombs in Northern Greece, where terracotta statuettes of Aphrodite with Eros were deposited as funerary offerings. As Rudhardt has noted, Greek goddesses were rarely maternal toward their offspring, yet Aphrodite with her son became a prominent funerary figure for women and children, seemingly symbolizing an idealized, divine, somehow unexpected bond. The movement of these figurines—whether through trade, personal devotion, or other forms of mobility—highlights how objects, much like people, acquired new meanings as they traversed different socio-spatial contexts. Once displaced from their original settings, these artifacts were not merely passive carriers of artistic traditions but active participants in the construction of new narratives of identity and belonging. By adapting and repurposing these figurines in new ritual and funerary settings, ancient communities reshaped their relationships with both the divine and the deceased, negotiating cultural memory and continuity through materiality.

851. ANCIENT DNA AND THE RETURN OF THE CULTURE = PEOPLE HYPOTHESIS

**Contribution format:** Oral  
**Contribution authors:** Maxime Bami (Johannes Gutenberg University Mainz)

Ancient DNA is transforming European prehistory, reviving old narratives such as the invasion by ‘steppe folks’ of third millennium BC Europe. However, concerns arise that prehistory is being hastily rewritten as a deep history of mass migrations, with ‘pots’ and ‘people’ inextricably linked together, like in the heydays of culture-historical archaeology. Ideas long thought outdated and fantastical, such as ‘massive migration’ and ‘wholesale cultural change’, are back on the archaeological agenda. In this seminar, I examine why old narratives are coming back through the latest revolution in science. I highlight how the use of untested, potentially obsolete culture-historical groupings for statistical modelling of genomic variation perpetuates relatively simple migration replacement scenarios. New interfaces of archaeology and genetics are needed to parameterize the material record in the most objective manner and revisit archaeological taxonomies used in genetics. I present some results of the DFG project CO-MOVE (2021-2025), including our work on AI-assisted classifications of material culture.

245 LAND USE IMPACT ON ARCHAEOLOGICAL HERITAGE. WHAT’S GOOD, WHAT’S NOT AND HOW TO MONITOR THIS?

**Session theme:** 7. Climate Change in the Past and Present  
**Session format:** Regular session  
**Session keywords:** Archaeological Heritage management, Policy, Impact, Land use change  
**Session organisers:** Karl Cordemans (Flemish Land Agency) – Jose Schreurs (Heritage Agency)

SESSION ABSTRACT

Recent evolutions in policies influencing the land use, such as the European Nature Restoration law, LULUCF, farm to fork, the Green Deal etc., together with the changing climatic conditions have led to many changes in land use. Land is afforested, new nature is being developed, farmers are growing other crops such as energy crops, starting paludiculture etc. It seems like this is a good moment to make a state of the art. In this session we like to examine the effects of different land uses (agriculture and nature) on the preservation of archaeological remains. Which crops, cultivation methods and management practices are preferable and which are inadvisable? Factors that play a role here include depth and nature of archaeological remains, soil conditions, laws and regulations, costs and traditions in working methods of land and nature management. How can the effects be monitored and mitigated? Which instruments are currently being used to prevent the damaging effects of some crops or practices.

CONTRIBUTION ABSTRACTS

1227. LAND USE AND PHYSICAL CONDITION ARCHAEOLOGICAL NATIONAL MONUMENTS IN THE NETHERLANDS

**Contribution format:** Oral  
**Contribution authors:** Marie-José Schreurs (Cultural Heritage Agency of The Netherlands)

In order to protect archaeological sites from developments and to insure the information they keep is saved when threatened, the Dutch government has listed about 1460 archaeological monuments which consist of more than 4000 individual sites. To gain insight into the current state of the protected monuments, to monitor changes and trends, and to be able to take measures aimed at the sustainable preservation of the stock of monuments, an Archaeological State Monuments Monitor was carried out. After all, the starting point for the designation of archaeological national monuments is their sustainable preservation. In this presentation, the methodology used and results of the study will be discussed, focusing on the relationship between land use and the preservation of archaeological sites. In addition, examples of land use, methods and techniques of management and tillage are presented focusing on their effects on the archaeological remains. It concludes with best practices and recommendations to achieve the most archaeology-friendly land use and management of archaeological heritage.

1026. MONITORING OF AFFORESTATION IMPACT ON ARCHAEOLOGICAL HERITAGE

**Contribution format:** Oral  
**Contribution authors:** Karl Cordemans (Flemish Land Agency)

Lots of parcels will be afforested in Flanders in the coming years as a result of European policies such as Biodiversity, Afforestation and Nature restoration targets. Archaeology and landscape are often not taken into account because no planning permission is required, or the planting of trees is not considered to be earthmoving (which is triggering the archaeological trajectory). As the effects of afforestation (positive and/or negative) is still unclear, there is definitely a need for more clarity on this issue. In response to this, the Flemish Land Agency and the Heritage Agency are jointly launching a monitoring study on a plot of land containing a variety of archaeological features, that will be afforested in the near future. As this plot will remain the property of the Flemish



Land Agency, long time monitoring can be set up. The ultimate goal is produce a guidance booklet, based on the findings of this project.

**2115. WASTELANDS RECLAIMED: THE IMPACT OF 18TH-CENTURY LAND USE TRANSFORMATIONS ON ARCHAEOLOGY AND LANDSCAPE IN THE CAMPINE AREA (BELGIUM)**

**Contribution format:** Oral  
**Contribution authors:** Pieter-Jan Reynaert – Bart Vanmontfort (KU Leuven) – Pieter Roggemans (Flemish Agency for Agriculture and Fisheries)

Over the past few centuries, the Campine area in northern Flanders (Belgium), has experienced a profound transformation of its landscape. While dominated by extensive heathlands and marshes during the late middle ages and early modern period, little of this remains today. Starting in the mid-18th century, these so-called “waste-lands” were subjected to an extensive government-driven reclamation campaign. Also in the centuries that followed, these “economically worthless” lands continued to be a source of frustration for central authorities. Several historical maps bear witness to the gradual conversion of these wastelands into more productive lands. With the help of deep-learning (AI) image classification, the land use depicted on these maps has been accurately digitised, allowing for high-detailed tracing and quantification of the reclamation processes. In times when in situ archaeological heritage faces increasing challenges related to climate change and sustainable land use, the reclamation history of the Campine area offers valuable lessons. It is beyond doubt that past land use changes have shaped the preservation of archaeological remains, with both positive and negative outcomes, but have they also contributed to the region’s increased sensitivity to drought? This paper explores the long-term effects of 18th-century land use legacies in the Campine area, uncovering its impact on both soil archive and landscape, while drawing lessons for future management and policy.

**2218. CULTIVATING A PLACE FOR ARCHAEOLOGICAL CONSERVATION IN REGENERATIVE AGRICULTURE: REFRESHED THINKING FROM ENGLAND ON RISKS AND OPPORTUNITIES**

**Contribution format:** Oral  
**Contribution authors:** Jez Bretherton (Historic England)

Since Brexit, English farming policy has been guided by the Agricultural Transition Plan. Where this impacts on archaeological conservation varies within the detail of the new Environmental Land Management schemes comprising the Sustainable Farming Incentive, Countryside Stewardship and Landscape Recovery. Historic England are engaged with Defra and others in the development and delivery of this new suite of agri-environment schemes. Agricultural policy changes reveal new challenges in understanding risk and opportunities to conserving archaeology, and new challenges for archaeologists to understand techniques of “regenerative agriculture”. The session aims to demonstrate the correlation and contested aims of these approaches in a way that can be better understood by archaeologists with an interest in land management. In this session we will take a refreshed look at the conservation of archaeological sites under arable systems, through the lens of the COSMIC risk assessments - a methodology developed in collaboration with Historic England, and practiced by among others, Worcestershire Archaeology. Robin Jackson of Worcestershire Archaeology, and Jez Bretherton, from Historic England, will use COSMIC risk assessment case studies, recent research into cropping and cultivation impacts, to provide insight into these challenges, and pose questions around the perennial issues of how archaeologists and conservation practitioners can engage in better shared understanding and communication with farmers to achieve sometimes elusive “sustainable agriculture” goals.

**2100. IMPACT OF RECENT WEATHER EVENTS ON THE CULTURAL HERITAGE OF THE SENSITIVE LANDSCAPE OF CALABRIA: IS CLIMATE CHANGE IMPACTING?**

**Contribution format:** Oral  
**Contribution authors:** Sara Marino – Alessandro Vanzetti (Sapienza University of Rome) – Paola Mercogliano – Giuliana Barbato (Euro-Mediterranean Center on Climate Change)

This contribute aims to focus on a specific Mediterranean Region, Calabria (southern Italy), a landscape where the long-lasting problems of drought, erosion, landslides, but also of coastal plain subsidence and stream flooding are considerable. In particular, the effects of extreme rainfall often have repercussions on valleys and plain areas, causing flooding, also of archaeological sites open to the public. Through this contribution we would like to try to draw attention to some of the main current and expected risk scenarios, precisely set into the territory in question, through the use of satellite datasets and high resolution climate projections over Italy. Indeed climate change may have a particularly strong effect on such a fragile environment, through induced soil erosion, weather induced landslides and overflowing, presently acting together with widely uncontrolled increase in land use and consumption (anthropogenic activities): sediments have always been transported and deposited due to rainfall, runoff, snow melting, but anthropic climate change and other human activities (such as agricultural or

irrigation practices, overbuilding the soil, quarrying, etc.) act as multiplier factors. Our analysis will try to define whether current and expected climate change is reflected in recent impacts on the archaeological sites and to identify the situations of major resistance/resilience, in front of the most vulnerable cases, calling for specific protection initiatives.

**2046. FRAGILE HERITAGE: THE IMPACT OF CLIMATE CHANGE ON ARCHAEOLOGICAL SITES IN THE FOREST ECOSYSTEMS OF UPPER LUSATIA, CENTRAL EUROPE**

**Contribution format:** Oral  
**Contribution authors:** Anna Wierzgon – Jędrzej Horodecki – Mateusz Krupski – Aleksander Misiurny – Gracjan Mielczarek – Katarzyna Biernacka – Barbar. Kwiatkowska – Pawe. Konczewski (Wrocław University of Environmental and Life Sciences)

The Fragile Heritage project addresses the growing impact of climate change on archaeological sites, particularly in Central European forests, a largely unexplored area in this context. Led by the Landesamt für Archäologie Dresden and Wrocław University of Environmental and Life Sciences, the project examines threats from extreme weather events, such as wildfires and prolonged droughts, to sites in Upper Lusatia. Unlike agricultural areas, forests have received little attention regarding climate-induced heritage degradation. Research from other European regions shows that soil erosion, organic material decomposition, and shifting vegetation dynamics can cause irreversible damage. In Upper Lusatia, climate-driven processes may prevent forests from recovering, accelerating the disappearance of archaeological sites, as seen in Prędocice, Białogórze, and Trzciniec. The project aims to monitor extreme weather effects, explore conservation technologies, and propose strategies like climate-adaptive reforestation. It also considers EU heritage protection policies, assessing funding mechanisms and technological innovations for site preservation. Additionally, the project highlights the need for interdisciplinary collaboration and public engagement, raising key questions about establishing a European monitoring network and effective conservation strategies. By integrating archaeology, environmental science, and policy, Fragile Heritage seeks not only to understand climate-driven degradation but to develop actionable solutions for safeguarding cultural heritage in a changing climate.

**246 ARCHAEO-ANTHROPOLOGY AND BUILDING ARCHAEOLOGY: WHAT DIALOGUE FOR WHAT COMPLEMENTARITY?**

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Round table  
**Session keywords:** Building archaeology, Archaeo-anthropology, Spaces, Dating, ,  
**Session organisers:** Charlotte Boyer (Museum National d’Histoire Naturelle - UMR7206) – Emilie Comes Trinidad (Service archéologique départemental de l’Ardèche-MuseAI) – Aurélie Terrier (Ecole polytechnique fédérale de Lausanne)  
**Session speakers:** Magdalena Fraser (Uppsala University) – Vivi Deckwirth (University of Helsinki,Aalto University)

**SESSION ABSTRACT**

Building archaeology is a relatively recent discipline whose methods for characterizing spaces and dating construction and evolution phases are based on several sources: written and graphic sources, stylistic elements/clues, stratigraphic relationships between sedimentary and construction units. In this research of understanding and dating spaces, burials—sometimes relegated to the margins of study—seem to constitute valuable material. This session intends to focus on the links between archaeo-anthropology as natural or hard science and building archaeology throughout five topics.  
1 - the investigation of the mutual contributions between archaeo-anthropology and building archaeology from Antiquity to the modern period through several approaches/lines of reflection;  
2 - the dating of construction phases and the characterization of spaces through the typo-chronological study of burials and/or their grave goods;  
3 - the physico-chemical dating as a means of absolute dating for bones, burial structures and element of construction;  
4 - the characterization of inhumed/buried populations (bio-anthropological, paleogenetic, biogeochemical studies, etc.) as an interpretive element for sepulchral structures and, more broadly, for the use of spaces;  
5 - the study of the spatial arrangement of burials and their evolution as an essential complement to understanding changes in the purpose and use of buildings or rooms.



247 RURAL ARCHAEOLOGICAL HERITAGE – A CHALLENGE TO SURVIVE -

**Session theme:** 6. Intertwining archaeology, heritage, and museums  
**Session format:** Discussion session  
**Session keywords:** rural archaeology, rural heritage, landscape, museum, visitor centre,  
**Session organisers:** Clara Masriera-Esquerra (Universitat Autònoma de Barcelona) – Johanna Niederkofler (ArcheoParc Schnalstal | Val Senales)

SESSION ABSTRACT

The knowledge transfer of archaeological heritage has been predominantly centered on urban areas, where population density and accessibility facilitate the study and exhibition of historical narratives. However, archaeological heritage of rural regions, often remain overlooked. This session aims to investigate the archaeological heritage of less populated rural areas, examining whether these regions possess significant historical narratives worthy of display. We will explore the financial challenges faced by these areas in maintaining museums and visitor centers, as well as the demographic composition of local and visiting communities that engage with these sites. Furthermore, we will analyze the types of activities and communication strategies employed to promote awareness and appreciation of rural heritage. By sharing diverse experiences from around the globe, this session seeks to illuminate the rich, yet often hidden, histories of rural areas. We aim to foster a dialogue on the importance of inclusive heritage practices that recognize and celebrate the past of all communities, regardless of their size or accessibility. Through this exploration, we hope to highlight innovative approaches to heritage management that can enhance the visibility and sustainability of archaeological sites in rural contexts, ultimately contributing to a more comprehensive understanding of our shared human history.

CONTRIBUTION ABSTRACTS

44. CENTERING RURAL LANDSCAPES: COMMUNITY-BASED ARCHAEOLOGY FOR CULTURAL HERITAGE DEVELOPMENT IN TRANSYLVANIAN RURAL LANDSCAPES

**Contribution format:** Oral  
**Contribution authors:** Elizabeth Arnold (University of California, Los Angeles) – Colin Quinn (University at Buffalo) – Horia Ciugudean (Muzeul National Al Unirii din Alba Iulia)

Communities constantly produce and reinforce notions of cultural heritage in their expressions of identity and memory. Heritage preservation greatly influences senses of social, cultural, and historical identity at individual, community, and national levels. Especially in rural communities, heritage is deeply rooted in communities’ experience with landscape. However, as contexts that express a unique sense of place, rural traditional landscapes encounter threats to their heritage in the face of modern development, unemployment, and changing policies. In this paper, we explore the potential for community engagement rooted in archaeology and how it can play a role in the sustainable development of rural landscapes. In particular, we present several ongoing projects focused on prehistoric archaeology in Alba County, Transylvania. Drawing on theories of placemaking, memory, and monumentality, this paper explores the strong connection between people and place over time as a justification for drawing upon archaeology to reimagine how communities engage with landscape in the present and future. We highlight the potential for community-based cultural heritage revitalization as a way to promote sustainable development in Transylvania’s rural landscapes. Knowledge of how people of the past engaged with landscape gives the opportunity to reinterpret how communities interact with their environments and build cultural heritage. Projects geared towards sustainable cultural heritage preservation ignite cultural pride and encourage cultural expression, maintained through social memory creation and key economic opportunities and benefits across different scales. Ultimately, archaeology in concert with community-engaged cultural heritage outreach efforts can be useful to counterbalance urbanization and enhance investment in rural communities.

1264. DIG-NITY OF MARGINALITY: PRESERVING CULTURAL IDENTITY OF AGRO-PASTORAL ITALIAN LANDSCAPES

**Contribution format:** Oral  
**Contribution authors:** Sara Zecchinato (Università degli Studi di Sassari) – Luigi Magnini (Università Ca’ Foscari Venezia) – Marco Milanese (Università degli Studi di Sassari)

For decades, the process of depopulation of small villages and rural areas has been an increasingly difficult problem in Italy. The dramatic consequences of this population decline is the progressive loss of historical and archaeological heritage, but most of all the cultural identity that these rural spaces represent and preserve. This can be attributed to the limited number of attempts in Italy over the years to explore the dimensions of rural archaeology. Moreover, the few investigations conducted often focused on the analysis of material culture

associated with a specific chronological event, rather than examining the impact of human actions over time on the landscape. As a result, environmental resource management and land use have long been overshadowed by the ‘site domain’ and urban space, both in archaeological studies and in conservation strategies, causing a gradual loss of dignity for their historical narratives and the contexts in which they exist. This contribution intends to present the preliminary results of the territorial investigations carried out within a PhD project that analyze the procedures for the valorisation of marginal cultural contexts. This project aims to reconstruct and valorize the cultural heritage of two Italian rural contexts: the Marcesina Plain, in Veneto, and the Logudoro region, in the central-eastern part of Sardinia. Both cases represent abandoned agro-pastoral landscapes naturally marginalized from major urban centers. Despite their isolation, they reflect a remarkable territorial resilience, shaped by a historical collective memory that has been carefully preserved and handed down through generations. This narrative is evident in the archaeological record and the historiographical sources that have been explored. By examining the landscape historically and analyzing land use patterns, we aim to propose solutions that prioritize the revitalization and of these areas; ultimately, we aspire to preserve their social, and cultural significance, affirming the dignity of their identities.

1932. ARCHEOPARC VAL SENALES AS A CASE STUDY

**Contribution format:** Oral  
**Contribution authors:** Johanna Niederkofler (archeoParc Val Senales)

This presentation explores how the study and interpretation of archaeological heritage can contribute to the holistic development of remote regions, using the archeoParc Val Senales as a case study. Located at 1500 meters above sea level in the Italian Alps, close to the Iceman’s discovery site, the archeoParc is dedicated to understanding the lives of our Neolithic ancestors, particularly those from the Copper Age. By immersing visitors in the culture, tools, trade, and daily activities of the Iceman and his contemporaries, the archeoParc fosters a unique approach to learning through experiential engagement with the past. The archeoParc stands as a testament to the difficulties and the potential of archaeological research to not only inform us about ancient societies but also to revitalize rural communities. The park creates jobs, fosters local tourism, and provides educational opportunities in a region threatened by emigration. Through workshops, guided tours, and collaborations with institutions safeguarding cultural heritage, the archeoParc contributes to both the intellectual and economic life of the region. This presentation aims to provoke discussion on how the study of archaeological heritage in remote regions can foster a deeper appreciation for the sustainability and adaptability of rural communities throughout history and challenge our perceptions of the past while simultaneously contributing to contemporary rural development.

1492. REDISCOVERING THE PAST: PRESERVING RURAL ARCHAEOLOGICAL HERITAGE IN HIGH-ALTITUDE LANDSCAPES

**Contribution format:** Oral  
**Contribution authors:** Clara Masriera-Esquerra – Anna Bonet-Peláez (Universitat Autònoma de Barcelona)

Archaeological research in rural high-altitude areas is essential to understanding how humans have historically adapted to extreme environments and transformed landscapes over time. Despite this, research has often focused more on lowland and urban areas, contributing to the misconception that high-altitude mountains were uninhabited during prehistory. This has led to a gap in research and recognition of the significant human activities, like the pasture of flocks, that have shaped these landscapes for millennia. Transferring the findings of this research to the general public is crucial for fostering appreciation and awareness of rural archaeological heritage. Effective dissemination can be achieved through educational programs, museum exhibitions, interactive digital platforms, and community engagement initiatives. Encouraging public participation in archaeological projects, such as guided site visits and hands-on workshops, can help bridge the gap between academic research and local communities. Additionally, leveraging social media and documentary storytelling can further enhance accessibility and interest in the historical significance of high-altitude human activity. By making this knowledge widely available, it becomes possible to promote conservation efforts and encourage sustainable interaction with these cultural landscapes. In this paper, we want to explain a project idea between the National park of Aigüestortes i Estany de Sant Maurici (PNAESM) and the research group in High-Altitude archaeology (GAAM) from the Prehistory department of Universitat Autònoma de Barcelona.

1791. HERITAGE MONITORING AND ENFORCEMENT IN SCOTLAND’S HISTORIC ENVIRONMENT

**Contribution format:** Poster  
**Contribution authors:** Luke Dale – Catherine Parker – Louise Roger – Sheila Clark – Chris Barrowman – Bob Will (Historic Environment Scotland)

Historic Environment Scotland (HES) maintains a list or ‘schedule’ of monuments considered to be nationally important, ranging in age from the Mesolithic to the Cold War era. There are over 8000 scheduled monuments in



Scotland, ~80% of which are on agricultural land and are impacted by (commercial) land management practises. Scheduled monuments situated in forestry also present challenges in terms of long-term land management. This paper outlines HES’s approach to monitoring and enforcement and the vital role played by education, encouragement and engagement with rural landowners in underpinning an efficient regulatory regime based on the Ancient Monuments and Archaeological Areas Act (1979). Monitoring sites using a variety of methods is particularly important, as it allows HES to track changes in the condition of monuments over time, to identify potential risks and unauthorised works at an early stage, and to provide an opportunity to give management advic. to land-owners (and discuss potential funding opportunities). Education, encouragement and engagement are shown to reduce the need for enforcement and are vital for the long-term preservation of Scotland’s historic environment.

248 INTERDISCIPLINARY APPROACHES TO HEALING PRACTICES FROM PREHISTORY TO HISTORY

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Regular session  
**Session keywords:** Prehistoric and ancient medicine, Archaeological breakthroughs, Dental calculus, Coprolites, Material culture, Plant-based remedies and drugs  
**Session organisers:** Emanuela Cristiani – Elena Fiorin (Sapienza University of Rome) – Lisa-Marie Shillito (Newcastle University)

SESSION ABSTRACT

This session invites contributions exploring the evolution of medicinal practices across prehistoric and historical periods through recent methodological breakthroughs in archaeology. We are interested in the relationship between ancient human communities and their natural environment. We focus on how they used natural resources for sustenance and as therapeutic agents, uncovering the roots of early medicinal practices and healing systems. Prehistoric humans survived injuries and illnesses, implying that medical care was essential for survival. The prevalence of cranial trepanations and amputations further suggests an understanding of pain relief and trauma treatment. However, reconstructing ancient medical practices poses challenges, as many treatable conditions leave no skeletal traces, and the line between food and medicine is often blurred. Interdisciplinary methods grant researchers access to hidden features of prehistoric, protohistoric, and historic medicine by analyzing dental calculus, coprolites, pottery residues, and sediments. When applied effectively, these methods provide new insights into ancient ailments and treatments. While metagenomic analyses reveal information on ancient pathogens, parasitological studies on sediments suggest that plant-based remedies were used as early as Europe’s Neolithic and Bronze Age. Pottery residue analysis indicates drug use, with evidence of psychoactive plants like psilocybin mushrooms for pain management in Medieval contexts. Dental calculus offers insights into early health practices, showing Neanderthals used anti-inflammatory plants. Forensic analyses of modern dental calculus aid in interpreting ancient metal pollutants, with pathogen reconstruction supported by aDNA analysis. We welcome interdisciplinary contributions to redefine our understanding of ancient healthcare, highlighting how new archaeological techniques broaden insights into medicinal practices. Leveraging aDNA, metagenomics, paleogenomics, proteomics, ICP-LCMS, entomology, microarchaeology, and microscopy, we invite studies on bioarchaeological remains (e.g., bones, teeth, dental calculus, coprolites), sediments, and material culture. These sources offer a broader perspective on health and healing practices, providing evidence for curative practices in prehistoric and early historical communities.

CONTRIBUTION ABSTRACTS

1760. UNCOVERING THE ROOTS OF PREHISTORIC MEDICINE: INTERDISCIPLINARY APPROACHES TO HEALING PRACTICES AND ECOLOGICAL KNOWLEDGE

**Contribution format:** Oral  
**Contribution authors:** Emanuela Cristiani (Sapienza University of Rome)

Why study prehistoric medicine? Despite the lack of direct evidence and written records, exploring the healing practices of early human societies is crucial due to the evolutionary significance of medicinal knowledge. Prehistoric medicine was essential for survival and a key element in the cultural and technological development of early humans. Evidence suggests that prehistoric humans used plants, animals, and minerals to treat injuries, infections, and diseases. The roots of self-medication, observed in both humans and animals, indicate that early humans likely learned to identify natural therapeutic resources through experience and observation. Recent interdisciplinary methods, such as the analysis of dental calculus, metagenomics, and proteomics, have opened new doors for understanding prehistoric medicine. Dental calculus, in particular. has preserved traces of medicinal

plants like yarrow and chamomile, showing how early humans managed pain and inflammation. These findings challenge the strict division between food and medicine, suggesting that early humans saw these resources as interchangeable. Further evidence from pottery and tools points to the use of psychoactive substances like psilocybin mushrooms for both medicinal and spiritual purposes. In this presentation, I will explore archaeological, bioarchaeological, and biochemical methods that can help shedding light on the origins of pharmacological practices and how early prehistoric societies used ecological knowledge to shape their survival strategies. By integrating theoretical insights from ethnography, anthropology, and ethnoscience, I will examine how an interdisciplinary approach enhances our understanding of prehistoric healing systems, highlighting the differences between these ancient practices and our modern concepts of healing.

1708. IDENTIFYING ANCIENT MEDICINAL PRACTICES THROUGH COPROLITE ANALYSIS

**Contribution format:** Oral  
**Contribution authors:** Lisa-Marie Shillito (Newcastle University) – John Blong (Washington State University)

Coprolites have become increasingly recognised as a valuable source of information on ancient health and diets. Compared to other forms of archaeological evidence, they can offer high resolution snapshots into individual ‘consumption episodes’ with specific microscopic items such as pollen, seeds and plant tissues, bone fragments, along with biomolecular residues resulting from the individuals’ digestive system, reflecting both the gut biochemistry and diet. A key challenge is distinguishing between deliberate and incidental consumption. Some particles found frequently in coprolites, such as microcharcoal and mineral grains, are not clearly linked to food. They may alternatively be a result of incidental consumption through food preparation, or possibly inhalation of smoke from the environment. One activity that has not been widely considered is that particles and residues in coprolites may be related to consumption for medicinal purposes, rather than nutrition. The use of charcoal for medicinal purposes for example is known from written sources and ethnographic studies. This paper reviews the occurrence of charcoal and other non-nutritional contents in coprolite assemblages from several early prehistoric sites, and considers whether these may be related to deliberate consumption for medicinal purposes.

1765. WORK, STRESS, AND LIFE HISTORIES: OSTEOBIOGRAPHICAL ANALYSIS OF THREE WOMEN FROM THE NECROPOLIS OF OSTIA ANTICA

**Contribution format:** Oral  
**Contribution authors:** Ileana Micarelli (Department of Environmental Biology, Sapienza University of Rome) – Prisca Solaini (Parco archeologico di Ostia antica, Servizio di Antropologia, MIC) – Giovanna Cataldo (Department of Mental and Physical Health, and Preventive Medicine, University of Campania) – Flavio De Angelis (Department of Mental and Physical Health, and Preventive Medicine, University of Campania | Department of Biology, California State University Northridge) – Alfonso Reginelli – Anna Russo (Department of Precision Medicine, University of Campania) – Paola Francesca Rossi (Parco archeologico di Ostia antica, Servizio di Antropologia, MIC)

Bones serve as biological archives, where intersecting factors and structural inequalities impact both physical and osteological health. Roman medical knowledge was widespread and advanced, with a clear understanding of female-related pathologies, as evidenced by votive offerings and, to some extent, by stature. This investigation seeks to highlight the importance of intersectionality by examining the interactions between social status, vulnerability, and gender within an archaeological context. Ostia Antica was one of the most significant centres during the Roman Imperial period, with the funerary area dated the 1st-2nd centuries CE. This study presents the reconstruction of three women to explore their pathological conditions, healing practices, and the consequences thereof. Several morphological features are shared by these three individuals, including short stature, enamel hypoplasia, and, in at least two cases, anterior curvature of the left femur and fractures. However, while one case suggests that the curvature resulted from an old healed fracture, another appears to show a severe case of osteomalacia. The third individual, despite being in poor preservation, displays a clear bone callus (on the right humerus) as a result of a right-sided fracture. These cases tell three distinct osteobiographies. Their survival in the face of nutritional stress, infections, fractures, and biomechanical dysfunction suggests the presence of medical knowledge that not only facilitated survival but also enabled individuals to live with their pathological conditions. Likely, this knowledge was aimed at improving their quality of life despite the challenges they faced.

1209. MEDIEVAL MERCURY EXPOSURE: BIOARCHAEOLOGICAL INSIGHTS FROM DENTAL CALCULUS

**Contribution format:** Oral  
**Contribution authors:** Elena Fiorin (DANTE-Diet and Ancient Technology Lab, Sapienza University of Rome) – Vincent Perrot (Research Unit: Archaeology, Environmental Changes & Geo-Chemistry, Vrije Universiteit Brussel)



Mercury (Hg) is a highly toxic heavy metal featuring a complex biogeochemical cycle and exists in various forms throughout the environment. Historically, Hg has been employed for artistic, industrial, and medicinal purposes, including treatments for syphilis and leprosy in medieval Europe. While archaeological research has analyzed Hg levels in bones and teeth to assess past exposure (cultural, environmental, poisoning from food or medical treatment), its presence in dental calculus (DC) has largely gone unexplored. Since DC has been shown to be of particular relevance to trace ancient diets and environmental contexts of ancient populations, this study investigates Hg concentrations in DC from individuals interred in late medieval cemeteries (11th–16th centuries), mainly focusing on sites associated with leprosy. Comparative samples from cemeteries not linked to leprosy were analyzed to evaluate potential differences in Hg exposure. Additionally, soil samples from burial contexts were examined to assess possible post-mortem mercury contamination. Trace amounts of Hg were measured in soil using atomic absorption spectrometry (AMA-254) and in dental calculus using cold vapour fluorescence adsorption spectroscopy (CV-AFS). Results revealed significant mercury variability between sites, with dental calculus from leprosaria cemeteries displaying notably higher concentrations than those from non-leprosaria cemeteries. This indicates that individuals affected by leprosy may have been exposed to Hg-based medicinal treatments. The exclusion of soil as a source of Hg in dental calculus strengthens this hypothesis. This study provides new insights into the role of Hg in historical medical practices, highlighting the potential of dental calculus as a valuable proxy for reconstructing past therapeutic interventions. Further research is essential to constrain better Hg exposure pathways and their implications for medieval healthcare practices.

981. MERCURIAL TREATMENT OF DEFICIENCY DISEASES IN 17TH-19TH CENTURIES FRANCE

**Contribution format:** Oral  
**Contribution authors:** Alexandra Zinn – Isabelle Pianet (UMR 6034 Archéosciences, Bordeaux Montaigne University) – Antony Colombo (UMR 6034 Archéosciences, Bordeaux Montaigne University | École Pratique des Hautes Études - PSL University)

The French industrialisation has been accompanied by economic and social transitions. With it, an epidemiological transition led to the emergence of diseases as respiratory and cardiovascular diseases and changes in the prevalence of deficiency diseases such as rickets (vitamin D) and scurvy (vitamin C). Meanwhile, major scientific advances, particularly in medicine and pharmacy, have led to changes in the treatment for deficiency diseases treatments. The medico-historical literature reports plant-based and animal-based treatments but, interestingly, also treatments containing metal elements, especially mercury. Mercury is now recognised extremely toxic, but has been widely used in many forms for medical purposes since the 17th century. The paleopathological analysis conducted on several osteo-archaeological collections from metropolitan France (n=4) dated to the 17th–19th centuries has revealed numerous individuals exhibiting skeletal signs of multiple deficiencies attributable to rickets and/or scurvy. These individuals (n=59) were subsequently subjected to an archeometric investigation for mercury detection with Energy Dispersive X-ray Fluorescence (ED-XRF) and Cold Vapour-Atomic Absorption Spectrometry (CV-AAS). Performed on bone and dental samples (molar, phalanx, vertebra), this paleopharmacological analysis revealed abnormal high mercury concentrations, suggesting severe ante-mortem intoxication (value as high as 9.373 mg/kg). Here, we discuss the hypothesis of mercury-based medical treatment through a thorough assessment of other potential sources of mercury contamination (soil metallogeny, environmental factors, occupational mercury exposure), in the socio-cultural context of the studied sites during the 17th–19th centuries. This study, is highlighting the relevance of the paleopharmacological approach within the framework of the archaeology of health and provides valuable insights into past therapeutic practices and their evolution over time.

698. THE CASE OF ST. TEODOR CHURCH (CROATIA): PRELIMINARY RESULTS OF ARCHAEOLOGICAL AND PALEOPATHOLOGICAL ANALYSIS

**Contribution format:** Oral  
**Contribution authors:** Sinisa Pamic (Croatian Conservation Institute) – Natasa Sarkic (Aita Bioarchaeology)

The remains of St. Teodor church are located in the Municipality of Marčana, Istria County, Croatia. Since 2018 archaeological campaigns and conservation-restauration works have been implemented. Researchers identified several construction phases. The oldest dates back to the late antiquity. The church was expanded in the 13th century when burials around the church began. Due to the large number of burials, side entrances were walled up in the 15th century. The church was abandoned in the 19th century and was quickly ruined afterwards. Around the church, 50 graves with multiple deceased were excavated, dating from the beginning of the 13th to the mid-16th century. The oldest burials were on the native rock without coffins, followed by burials built and plastered tombs, while the youngest ones were vertical slab tombs with stone lids covering. While the burial practices and objects found in the graves at the St. Teodor necropolis resemble those of other Christian necropolises from the same period, the results of anthropological and paleopathological analyses were unexpected. The demographic population in this necropolis is unusual, as there are significantly more adult men than women and

children. Many individuals had remarkable congenital or acquired deformities, along with chronic illnesses, that necessitated constant care. The existence of trepanations and other surgical procedures, as well as their successful outcomes, indicates the presence of medical care. In this presentation, we will combine traditional methods such as macroscopic analysis with advanced techniques like CT and mCT scanning, paleoparasitology, and the analysis of ancient DNA pathogens. This integrated approach will enhance our ability to detect pathologies that are not visible to the naked eye, ultimately providing a better understanding of health and healing practices within this unique community.

251 KINSHIP SYSTEMS AND THEIR IMPACT ON PAST HUMAN COMMUNITIES

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Regular session  
**Session keywords:** social kinship, aDNA, biological relatedness, community organisation, biosocial archaeology  
**Session organisers:** Zsuzsanna Siklósi (Eötvös Loránd University) – Domnika Verdianu (Department of Prehistory and Historical Archaeology, University of Vienna | Austrian Archaeological Institute, Austrian Academy of Sciences) – István Koncz (Eötvös Loránd University) – Wolfgang Haak (Max Planck Institute for Evolutionary Anthropology)  
**Session discussant:** Domnika Verdianu (Department of Prehistory and Historical Archaeology, University of Vienna, Austrian Archaeological Institute, Austrian Academy of Sciences)

SESSION ABSTRACT

The huge increase of aDNA data in recent years reveals in previously unimaginable detail the biological relatedness between individuals in the past and, through them, the networks of biological organisation of communities. At the same time, it is becoming increasingly clear that (1) biological relatedness cannot capture the full spectrum of social kinship systems, and (2) there is a complex interrelationship between different cultural networks and kinship systems. The ability to generate genomic data from entire cemeteries has only become possible in recent years. The resulting studies reveal the complex relationship between biological relatedness and social kinship and its varied impact on community formation and development. While many studies focused on the presence of ‘pedigrees’ (i.e. sets of closely biologically related individuals), the quantitative and qualitative analysis of biologically unrelated individuals also provides critical information on other contributing factors. This again raises the question of how representative these funerary communities are of the world of living, what ordering principles governed who was buried in a cemetery, and whether we can discern similar kinship systems and social rules in culturally similar sites. The study of kinship systems, community organisation and the choice of burial places is inextricably linked to understanding residence patterns, individual and group mobility and several social rules (e.g. marriage, childcare, consanguinity). The examination of these interrelated elements requires the integration of diverse research methods and disciplinary perspectives. We welcome inter- and multidisciplinary research that approaches the study of kinship systems and community organisation from multiple perspectives and discusses some of the interrelated topics.

CONTRIBUTION ABSTRACTS

1402. “MATERIAL AFFINITIES”: BIOLOGICAL TIES AND MATERIAL CONNECTIONS AT ÇATALHÖYÜK

**Contribution format:** Oral  
**Contribution authors:** Camilla Mazzucato (Department of Life Science and System Biology, University of Turin | University of Copenhagen) – Michele Coscia (IT University of Copenhagen) – Ayça Küçükakdağ Doğu (Department of Biological Sciences, Middle East Technical University, Ankara) – Scott Haddow (University of Copenhagen) – Muhammed Kılıç (Department of Health Informatics, Middle East Technical University, Ankara) – Eren Yüncü – Mehmet Somel (Department of Biological Sciences, Middle East Technical University, Ankara)

Archaeogenomic research at Çatalhöyük has revealed complex patterns of genetic relatedness and unrelatedness between individuals buried underneath the floor of houses at the site (Yüncü et al. 2024). Biological relatedness appears to be only one of the factors that determines the selection of individuals to be buried within the same building. Recent research on kinship patterns and practices of relatedness at Çatalhöyük made use of Network Science as a way of synthesizing and analyzing a heterogeneous and complex dataset composed by archaeogenomic and material culture data (Mazzucato et al. 2025). Network methods highlighted the importance of materiality in constructing and reproducing kinship bonds and revealed that biological relatedness correlates



with material culture similarities and concentrates in space. For the current study we aim to further investigate the dynamic and complex relationship between material culture and practices of relatedness at Çatalhöyük and to explore the role of the different material categories in determining links between buildings and their relations with genetic bonds on site.

**2189. VARIABILITY OF KINSHIP PRACTICES AND SOCIAL ORGANISATION IN THE EARLY COPPER AGE OF THE EASTERN CARPATHIAN BASIN**

**Contribution format:** Oral  
**Contribution authors:** Zsuzsanna Siklósi (ELTE Eötvös Loránd University, Institute of Archaeological Sciences | MTA-ELTE Lendület “Momentum” Innovation Research Group) – Cristian Virag (Satu Mare County Museum) – Anna Szécsényi-Nagy – Kristóf Jakab (HUN-REN Hungarian Research Network, Research Centre for the Humanities, Institute of Archaeogenomics) – Tamás Keszi (Hungarian Natural History Museum, Hungarian National Museum Public Collection Centre) – Zsuzsanna Virág (Budapest History Museum, Aquincum Museum) – Tamás Hajdu (ELTE Eötvös Loránd University, Department of Biological Anthropology) – Sándor Évinger (Hungarian Natural History Museum, Hungarian National Museum Public Collection Centre) – Ron Pinhasi (University of Vienna, Department of Evolutionary Anthropology) – David Emil Reich (Department of Genetics, Harvard Medical School | Department of Human Evolutionary Biology, Harvard University | Howard Hughes Medical Institute | Broad Institute of MIT and Harvard)

We present the results of 116 newly sequenced genomes from six contemporaneous Early Copper Age sites (4500-3900 cal BCE) from the eastern Carpathian Basin using population genomic and identity-by-descent (IBD)-based biological relatedness estimations. Early Copper Age communities lived in small-scale, farm-like settlements throughout the eastern Carpathian Basin. Formal cemeteries were first established at the beginning of the Copper Age in this region, and besides these formal burial grounds, the tradition of settlement burials continued. We found that Tiszapolgár-Basatanya and Urziceni-Vamă cemeteries, lying 100 km from each other and sharing several cultural elements such as mortuary rituals and material culture, reflect different kinship practices and community organisation. Tiszapolgár-Basatanya could be a burial place for a strongly connected, closed, patrilineal and patrilocal community in which first-cousin unions frequently occurred, and close relatives were usually buried next or close to each other. On the contrary, Urziceni-Vamă indicates a significantly larger, open community where close relatives were not buried next to each other and did not follow the patrilineal organisation. We found biological relatedness between the analysed contemporaneous sites using IBD-based network construction. Our presentation discusses the shared cultural traditions and differences in mortuary practices and material culture and focuses on the sociocultural interpretation of diverse community organisations and kinship practices.

**795. GENETIC RELATEDNESS AND KINSHIP IN CORDED WARE AND BELL BEAKER COMMUNITIES FROM CENTRAL GERMANY**

**Contribution format:** Oral  
**Contribution authors:** Sandra Penske (Max Planck Institute for Evolutionary Anthropology) – Adam Rohrlach (Max Planck Institute for Evolutionary Anthropology | School of Biological Sciences, University of Adelaide) – Torsten Schunke – Jonathan Schulz – Jörg Orschiedt – Harald Meller (Landesamt für Denkmalpflege und Archäologie Sachsen-Anhalt) – Wolfgang Haak (Max Planck Institute for Evolutionary Anthropology)

The Late Neolithic (~2800-2400 BCE) was a time period of major genetic and social changes. With the emergence of the Corded Ware Complex (CWC) (~2800 BCE) in Central Germany, steppe-related ancestry and new burial practices were introduced to the region, such as sex-specific grave goods and orientation of the dead. Around 2500 BCE a new cultural complex, the Bell Beaker Phenomenon (BBP) appeared. Being partially contemporaneous with the late CWC, individuals associated with the BBP show a distinct genetic profile and phenomenon-specific burial rites. However, practices surrounding social organization during the Late Neolithic in Central Germany are largely unknown and possible differences or similarities between the CWC and the BBP have not yet been studied at a site with spatial and potential temporal overlap. Here, we present genome-wide data from 23 individuals from the Central German site of Oechlitz: five from a multiple burial associated with the late CWC and eighteen from a partially contemporaneous burial ground associated with the BBP less 100 m apart. We find close genetic relationships between the individuals associated with the CWC, and also between those associated with the BBP, but not between the culturally-associated groups. Pedigree reconstruction suggests a tight-knit community in Oechlitz during the BBP. The results of this study will yield new insights into the social organization of these two genetically and culturally distinct phenomena Late Neolithic groups and broaden our understanding about possible variations between them.

**571. PATRILINEALITY AND FEMALE EXOGAMY IN A LATE CHALCOLITHIC MOUNTAIN COMMUNITY AT THE EASTERN PYRENEES**

**Contribution format:** Oral  
**Contribution authors:** Núria Puig i Riera (Universidad del País Vasco (UPV/EHU)) – Celia Díez-Canseco (Institut Català de Paleoeologia Humana i Evolució Social (IPHES-CERCA) | Muséum National d’Histoire Naturelle) – Miguel Ángel Moreno-Ibáñez (School of History, Classics and Archaeology, University of Edinburgh) – Rosa Soler (Institut Català d’Arqueologia Clàssica (ICAC-CERCA) | Universitat Rovira i Virgili (URV)) – Swapan Mallick (Harvard Medical School | Broad Institute of MIT and Harvard) – Nadin Rohland (Harvard Medical School) – Carlos Tornero (Universitat Autònoma de Barcelona (UAB) | Institut Català de Paleoeologia Humana i Evolució Social (IPHES-CERCA)) – David Reich (Harvard Medical School | Broad Institute of MIT and Harvard | Harvard University) – Iñigo Olalde (Universidad del País Vasco (UPV/EHU) | Harvard University | Ikerbasque–Basque Foundation of Science)

Roc de les Orenetes (Queralbs, north-eastern Spain) is a burial cave in the high Eastern Pyrenees mountains (1840 metres above sea level) containing a collective inhumation. At least two differentiated phases of use between the 3rd-2nd millennia BCE have been described according to archaeological, anthropological and radiocarbon analyses. In this study, we generated genome-wide data for 65 exceptionally well-preserved individuals belonging to the Late Chalcolithic phase (2500-2300 BCE). We were able to reconstruct a pedigree with 38 closely related individuals, organised around five sub-families likely descending from five brothers and following a strong patrilineal structure, with the remaining individuals connected to the main pedigree via distant familial relationships. There seems to be a particular funerary treatment for women, brought to light by the significant sex ratio imbalance in favour of male individuals (3.75:1) and the absence of daughters from the clan in the cave, even before reaching reproductive age. This could be partially explained by the practice of female exogamy and the exclusion of subadult girls from the burial rite. The absence of recent endogamy in the genome of these individuals, thought to be isolated due to their peculiar location, suggests that they were part of a broader highland community. Despite being contemporaneous to the earliest presence of steppe-associated ancestry in Iberia, the Roc de Les Orenetes community lacked this ancestry component, highlighting that social organization around patrilineality and female exogamy were ongoing before the large-scale demographic change that took place in the Iberian Peninsula during the Early Bronze Age.

**702. LANDSCAPES OF SOCIAL AND GENETIC RELATIONS IN THE AUVERGNE REGION OF PRESENT-DAY FRANCE DURING THE BRONZE AGE**

**Contribution format:** Oral  
**Contribution authors:** Wolfgang Haak – Adam Rohrlach (Max Planck Institute for Evolutionary Anthropology, Leipzig) – Frédérik Letterlé (UMR 5138, Laboratoire ArAr - Archéologie et Archéométrie, Lyon) – Ivy Thomson (Centre de recherches archéologiques Inrap, Clermont-Ferrand) – Patrice Brun (Université de Paris 1 Panthéon-Sorbonne)

Recent methodological and analytical advances in archaeogenetics permit the generation and analysis of ancient human DNA data from entire burial sites. When fully integrated into the archaeological and anthropological contexts, the resulting combined data lends itself to the estimation of biological relatedness and exploration of social kin relation between individuals buried at the same site. Expanding the data to broadly contemporaneous nearby sites or regions, and leveraging the power of shared identity-by-descent (IBD), holds the potential to explore the complex interplay between genetic and cultural networks and the social organization of prehistoric communities at local and regional scales, and how these are embedded in their respective landscapes and economies. Here, we present new data from ~170 Early Bronze Age individuals from the Auvergne region from five different sites located in the valley near today’s Clermont-Ferrand, along and around the lake marshes of the Allier River (an area of about 200 km<sup>2</sup>). We observe a substantial number of closely related individuals, which allow for the reconstruction of a number of small or medium-sized pedigrees for each burial site. Critically, via shared IBD analysis we also find a large proportion of individuals that are genetically related to individuals from other sites from the region, resulting in a network that includes all five sites. Moreover, the remaining fraction of unrelated individuals indicates an even wider network of Bronze Age communities. We present and discuss the current stage of the project, its relevance for Bronze Age archaeology of the Auvergne region and the potential for expansion and cross-regional contextualization, and insights from comparisons with published funerary sites in Neolithic and Bronze Age Europe.



2120. FROM THE EURASIAN STEPPES TO CENTRAL EUROPE. A STUDY OF ENTIRE BURIAL COMMUNITIES IN THE AVAR PERIOD

**Contribution format:** Oral  
**Contribution authors:** Zsófia Rácz (Institute of Archaeological Sciences, Eötvös Loránd University) – Guido Alberto Gneccchi-Ruscone (Archaeo- and Palaeogenetics, University of Tübingen) – Luca Traverso (Max Planck Institute for Evolutionary Anthropology) – Levente Samu (Institute of Archaeological Sciences, Eötvös Loránd University) – Tamás Szeniczey (Department of Biological Anthropology, Eötvös Loránd University) – Balázs Takács – Tivadar Vida (Institute of Archaeological Sciences, Eötvös Loránd University)

Archaeogenomic analyses of entire burial communities have been a scientific novelty in recent years. As part of the HistoGenes project, analyses have been carried out on several Avar-period cemeteries from different parts of the Carpathian Basin. This presentation will focus on new findings to demonstrate the potential of these methods for studying the society of the Migration Period. What can (and cannot) be learned about the organization, kinship networks, and marriage strategies of people and communities in this period? How did various communities from different cultural backgrounds interact within the Avar Khaganate? We will also try to show the social changes that took place between the end of the 6th century and the turn of the 8th and 9th centuries at the level of smaller communities and on a larger scale. This analysis will be conducted by comparing archaeological finds, the spatial arrangement of cemeteries, pedigrees, and individuals who do not belong to biological kinship networks. Regarding transformations within the broader political entity, we aim to highlight phenomena observable across the entire Avar Khaganate.

1674. BIOLOGICAL RELATEDNESS OF KÖŞKHÖYÜK NON-ADULTS

**Contribution format:** Poster  
**Contribution authors:** Ekin Saglican (Middle East Technical University)

Köşkhöyük is an archaeological site situated in Turkey with the oldest Neolithic level dated to 6340-6080 cal BC. Köşkhöyük’s strategic location between the Levant and Central Anatolia makes it an intriguing site, showcasing unique cultural connections to both regions. For example, skull modification practices commonly seen in Levant Region are also present in this site considering it is located in Anatolia near the Taurus Mountains separating these two regions. The remains of 97 infants from this site have been studied for aDNA with 70% success rate. Preliminary results show that 83 pairs of individuals are biologically related in various degree, including siblings, half-siblings, cousins or avuncular relations. These initial findings allowed as to construct pedigrees of five biological families with 4,5,6,7 and 8 related individuals. Although biological relatedness is not enough to grasp the social organization of the population, maternal or paternal connections between related individuals, the presence of half-siblings and mating of biologically related individuals detected via aDNA can provide insights about the kinship systems.

252 TRANSHUMANCE IN THE MEDITERRANEAN WORLD

**Session theme:** 3. Exploring methods in research, education and communication  
**Session format:** Session with keynote presentation  
**Session keywords:** Transhumance, seasonal pastoralism, animal husbandry, Mediterranean  
**Session organisers:** Saša Caval (Zrc SAZU | University of Primorska) – Francesco Carrer (Newcastle University) – Miloš Petričević (Museums of Kotor) – Edin Bujak (University of Sarajevo)

SESSION ABSTRACT

Transhumance, an umbrella term for seasonal pastoralism and animal husbandry practices, refers to the cyclical migration of livestock between summer and winter pastures, optimizing the use of available natural resources while allowing the land to recover during off-seasons. These practices are rooted in local traditions and showcase an understanding of ecosystems, demonstrating sustainability over generations. The livestock are moved based on climatic conditions and the availability of water and grass. With animal husbandry encompassing animal care, breeding, and management to support human communities, transhumance has developed into a global economic activity, transcending geographical and chronological boundaries. The cultural significance of transhumant practices extends beyond mere survival; they are embedded with social rituals and community ties that foster a sense of identity and belonging within the community, reinforcing the interconnectedness between people, animals, and the land. Herders possess a deep, ancestral knowledge of their environment. Through careful stewardship and traditional ecological knowledge, transhumance contributes to sustainable land use and environmental conservation, providing valuable lessons for modern agricultural practices. Transhumance is a common feature of the

Mediterranean region. It has shaped the landscapes around the Mediterranean since prehistoric times and has become an important tangible and intangible heritage. With this session, we aim to discuss how archaeological studies of transhumance are advancing our understanding of the traditional pastoral practices that survive today in Mediterranean countries. We invite colleagues to present diverse topics in this context. We welcome a wide range of approaches, including onomastic methods, scientific micro-elemental analysis, ethnographic studies of transhumance, and assessments of environmental impacts on soil. We look forward to abstract submissions that utilize archaeological and multidisciplinary evidence of sustainable resource exploitation within specific Mediterranean landscapes at various times and places. Any perspective is valued and encouraged, enriching our understanding of these complex practices.

CONTRIBUTION ABSTRACTS

2524. KEYNOTE: ETHNOARCHAEOLOGICAL REALITIES AND SCIENTIFIC FACTS FOR THE PASTORALISMS OF THE PAST

**Contribution format:** Oral  
**Contribution authors:** Claudia Chang (Institute for the Study of the Ancient World, New York University | Sweet Briar College)

This address shall begin with a biographical sketch of my ethnoarchaeological research on village pastoralism in the Northeast Argolid of Greece (1978-1981) and pastoral transhumance in the Grevena region of Northern Greece (1989-1993). This early work on the material culture of Greek pastoralism such as the presence of animal folds, corrals, milking pens, herder’s huts, watering places, paths and other markers for documenting sheep and goat herding on the Greek landscape will serve as a backdrop for examining the contemporary scientific advancements in the fields of pastoral archaeology and ethnoarchaeology of the Mediterranean and other regions. There are two theoretical areas I shall focus on: (1) emerging evidence for the presence of pastoral transhumance in the Alps and the Pyrenees that extends back into the Neolithic period; and 2) how the ethnoarchaeological data collected in upland areas of the Mediterranean has now refined and strengthened our ethnographic analogies and actual pastoral site interpretations. The methodological areas that will be introduced but no doubt will be fleshed out by today’s archaeological practitioners in this session are: (1) uses of plant and animal isotopes for tracing pastoral mobility; (2) contributions of aDNA studies on animals and human skeletal materials that trace more than origins; 3) archaeochemistry of sediments associated with animal enclosures (dung deposits, middens, etc); and 4) the role of radiometric dating in re-visioning our models for mobility, pastoral transhumance, and its effect on the changing social evolution of Neolithic through Medieval and present-day pastoralism in the Mediterranean. Other theoretical and methodological paradigms will be invited from the participants in this exciting and ground-breaking session.

1970. ANATOLIAN TRANSHUMANCE: THE ENDURING INTERPLAY OF CULTURE, ECOLOGY, AND HERITAGE

**Contribution format:** Oral  
**Contribution authors:** Selin Karaca – Ayşe Güliz Bilgin Altınöz (Middle East Technical University Faculty of Architecture)

Transhumance represents a unique way of life that bears the cultural traces of seasonal and recurrent migration as well as animal-oriented production, which are reflected on the landscape. It is a millennia-old livelihood practice that contains diverse historical layers. Moreover, it is the common heritage of humanity practiced in many parts of the world especially in Mediterranean. The Taurus Mountains have witnessed the transhumant way of life for centuries, and the remnants of pastoral activities and highland settlements in the region suggest that transhumance practices may have also existed in antiquity (Takaoğlu, 2020; Hammer & Arbuckle, 2017; Hopwood, 1991). Having been a longstanding tradition for centuries, it is hard to sustain this way of life under current conditions. Additionally, the limited tangible traces of this culture further complicate its conservation. In this context, the Sarikeçili tribe, one of the last communities maintaining the traditional transhumance culture in the Taurus Mountains—a region where this practice has persisted for centuries—have been the focus of this study. The aim is to explore the dynamics of the transhumant landscape, providing a deeper understanding of transhumance culture by examining both its tangible and intangible heritage values, as well as the challenges it faces. In this regard, field studies were conducted to understand the physical and social environment through participant observation. Additionally, in-depth interviews were carried out to gain knowledge regarding the lifestyle, traditions, migration routes and rituals, production techniques, herding habits, problems and challenges, etc. This study highlights how the legal and administrative aspects along with top-down decisions significantly threaten the continuity of this culture. Rather than conserving it through multiple legal statuses, there is much to learn from the resilience and sustainability that form the core components of transhumance culture.



597. TRANSHUMANCE PRACTICES IN BRONZE AGE CRETE: THE EVIDENCE FROM THE UPLANDS

**Contribution format:** Oral  
**Contribution authors:** Yiannis Papadatos (National and Kapodistrian University of Athens) – Tina Kalantzopoulou (Belgian School at Athens | National and Kapodistrian University of Athens) – George Ntzoufras (National and Kapodistrian University of Athens)

Despite the abundance of indirect evidence about the importance of pastoralism for the palatial economy of Bronze Age Crete, the direct archaeological evidence is very poor for several reasons. First, pastoral activities, including transhumance, do not leave a strong archaeological imprint on the ground. Second, archaeological research in Crete is oriented towards the excavation of palatial and urban centers in the lowlands, while mountains still remain a highly neglected and scientifically marginalized area of systematic archaeological study. Based on the results of the resent work of the University of Athens on the Dikte mountains (East Crete), which includes archaeological surveying and ethnographic study of modern pastoral communities, this presentation aims at providing a history of the exploitation of the mountains for pastoral activities and transhumance throughout the Bronze Age (3rd and 2nd millennium BCE). The available evidence shows an important shift in the occupational history of the mountains in the Second Palace period (1700-1450 BCE), which might be related to changes in transhumance practices, and connected to deep transformations in the organization of pastoral economy due to palatial intervention. Considering that the mountains were not densely inhabited or intensively exploited in the earlier phases of the Cretan Bronze Age, our effort is to identify the ways by which the palatial system instigated, enabled or controlled initiatives to exploit the demanding mountainous terrain and promoted pastoralists to occupy marginal mountain areas and abandon traditional transhumance practices.

2523. KEYNOTE: TRANSHUMANCE IS GOOD TO THINK WITH

**Contribution format:** Oral  
**Contribution authors:** Dimitrij Mlekuž Vrhovnik (University of Ljubljana)

Transhumance, a form of nomadic pastoralism, involves the seasonal movement of people and animals between summer and winter pastures to ensure year-round grazing. This movement can be classified as either vertical, in the ‘lesser’ transhumant movement between valley floors and neighbouring uplands, or horizontal, in the ‘greater’ transhumant movement between distant agro-ecological regions. However, its many forms and appearances have led Fernand Braudel to caution against rigid classifications, emphasizing its fluid and context-dependent nature. Rather than attempting to fix and stabilize transhumance and look for its residues in the archaeological record, I argue that it is more productive to see it as an assemblage — a process, a practice of bringing together, joining, and traversing separate elements that form archaeological record. Movement is central to transhumance. To move through the world is to perceive it, engaging with a multiplicity of things. Transhumant movement is not just a response to the environment but a way of orienting in the world, shaping both meaning and material reality. Particular transhumant movements carry distinct social, political, and ecological significance. Movement does not happen in an empty space; it creates and alters space and place, makes relations and constructs time itself. Transhumance unsettles notions of human-animal relations. The movement of transhumance challenges the perceived autonomy of “the human,” demonstrating how human and non-human identities and bodies are inherently multiple, relational, and dependent on other presences. Transhumant movement, at once individual and collective, produces, resists, and sustains social orders while being constrained, directed, and limited by social structures, traditions, and political forces. It involves attractions and avoidances, intentional paths and imposed restrictions. Thus, the performativity of mobility — the ways in which movement is enacted, embodied, and experienced — becomes crucial to understanding transhumance.

2537. KEYNOTE: TRANSHUMANCE IN MONTENEGRO: RESEARCH ON HERITAGE-BASED LIFESTYLE

**Contribution format:** Oral  
**Contribution authors:** Ivan Lakovic – Olga Pelcer-Vujačić – Tatjana Koprivica – Aleksandra Kapetanović (Historical Institute, University of Montenegro)

Until the middle of the 20th century, the Montenegrin population lived predominantly within rural communities, pursuing agricultural practices suitable for local edaphic and climatic conditions. Given the lack of arable land and harsh summer droughts, the transhumant way of cattle rearing became the common way to go, establishing the system of different categories of tangible and intangible heritage that thoroughly defined such a society. In that context, special attention should be paid to katuns, seasonal settlements at mountain pastures, as the nuclei of lifestyle created on such a basis. Developed through vertical and horizontal transhumance, the Montenegrin katuns were the means for survival during the dry periods, a source of acquiring surpluses of the products for winter reserves, trade and marketing, and bases for developing new villages. Current societal tendencies render the katuns mostly abandoned and their areas depopulated, inevitably leading to the loss of related cultural and historical heritage. This is particularly problematic in the categories dependent on continuous

human maintenance, such as drystone and wooden constructions, traditional traffic directions and water-supplying infrastructure. Presented results emerged from research on case studies of Durmitor, Kući Mountain and Sinjajevina, conducted within the series of projects since 2015 and onwards, archaeological evidence, historical sources, and relevant literature.

526. ON A PASTURE IN THE MOUNTAIN DURING THE LIA: A LOCAL CASE OF PASTORAL MOBILITY NEAR RUPCHA, SOUTHEASTERN BULGARIA

**Contribution format:** Oral  
**Contribution authors:** Petar Minkov – Denitsa Sandeva-Minkova (National Institute of Archaeology-Bulgarian Academy of Sciences)

The study focuses on a recently discovered Late Iron Age settlement in southeastern Bulgaria. During its excavation various types of archaeological structures were found - ditch, pits, dug-in dwelling, hearth, etc. The materials that were found are scarce and include pottery sherds, both from hand-made and wheel-made vessels. Among the identifiable fragments are various open bowls, jugs, storage vessels, and an amphora base, probably of Thasos origin. Towards them can be mentioned two preserved vessels as well - a bowl and a tray, animal bones and a limited range of single finds. These include a spindle whorl, flint plate, stone pestle, and a small piece of a glass bracelet fragment. The finds, as well as the pottery, are in a fragmentary state, indicating that they were probably abandoned on leaving the settlement. All this and the characteristics of the landscape of the region and the features allow the excavated site to be interpreted as a Late Iron Age pastoral settlement.

1945. ECHOES OF MOVEMENT: ARCHAEOLOGICAL EVIDENCE OF PREHISTORIC MOBILITY IN THE MONTENEGRIN KARST

**Contribution format:** Oral  
**Contribution authors:** Milos Petricevic (Museums of Kotor)

The Dinaric Alps (Dinarides) represent a challenge for researchers across various scientific disciplines. Their inaccessibility and geographical isolation have made them one of the least archaeologically explored Montenegrin regions to this day. The high-altitude landscapes of Montenegro have often been regarded as remote, isolated and marginal environments by the Montenegrin archaeologists. The established views of the prehistoric activity in the High Karst zones remains limited, but recent discoveries have begun to reshape this narrative. Among the most significant findings are archaeological sites situated at nearly 2,000 meters above sea level—some of the highest-altitude sites ever recorded in Montenegro. From the newly uncovered petroglyphs in the Prokletije mountain range to previously unknown burial mounds in the high-altitude zones of Sinjajevina, these findings challenge established views on human presence and adaptation to extreme conditions. A number of previously unknown burial mounds and hillforts has been discovered using remote sensing techniques. However, without archaeological excavations, it remains impossible to precisely date these sites, leaving the question of when the burial mounds of Sinjajevina were erected. Recent archaeological investigations in these high-altitude regions not only shed new light on the adaptability of prehistoric communities but also provide critical insights into the early origins of transhumance in Montenegro. These discoveries testify to the capacity of ancient societies to endure and thrive in isolated, harsh environments, offering a deeper understanding of human-environment interactions throughout history.

2132. SEASONALLY OCCUPIED SETTLEMENTS IN THE DINARIC ALPS: A MULTI-PERIOD PASTORAL LANDSCAPE AT BUSOVAČA AND TARASOVAČA IN EASTERN HERZEGOVINA

**Contribution format:** Oral  
**Contribution authors:** Saša Caval (Institute for Anthropological and Spatial Studies, ZRC SAZU | Department of Archaeology and Heritage, University of Primorska) – Agni Prijatelj – Rok Turniški – Marko Zupan (Centre for Soil and Environmental Research, Biotechnical faculty, University of Ljubljana)

The multi-period pastoral settlements of Busovača and Tarasovača are located in a high-altitude valley at approximately 1,400 meters above sea level in eastern Herzegovina, where Crvanj mountain transitions into the Morine plateau. These settlements are marked by various archaeological remains, including multiple buildings, enclosures, and boundary walls. Our current geoarchaeological research is focused on understanding how human activities across different locations and periods have altered the geochemical characteristics of local soils at these two sites. In 2023 and 2024, we conducted soil augering and micromorphology sampling, surveying 69 locations using a combination of transects and a 5m x 5m grid. We analysed a total of 191 bulk soil samples from the A, AB and B horizons for the standard soil parameters, including pH, carbonates, soil organic matter, plant available phosphorus and potassium, and electrical conductivity. Additionally, pXRF spectrometry on the samples provided near-total concentrations of selected elements. A combination of principal component and GIS analyses revealed



spatial and temporal variation in the distribution of principal components, indicating diverse pastoral activities and varying intensities of land use over time. Moving forward, our research will integrate geoarchaeological data with radiocarbon dating, spatial and chronological analyses of archaeological features, architectural assessments, and historical and ethnographic synthesis. This interdisciplinary approach will facilitate an assessment of the extent and intensity of anthropogenic modifications at Busovača and Tarasovača during different occupational phases. Ultimately, our findings will contribute to the development of a finely calibrated research protocol for studying multi-period pastoral landscapes in the Western Balkans and beyond.

494. TRANSHUMANCE AND THE LONG-TERM SUSTAINABILITY OF MEDITERRANEAN LANDSCAPES

Contribution format: Oral  
Contribution authors: Francesco Carrer (Newcastle University)

Transhumance is one of the most important and iconic agricultural heritage systems in the world. This pastoral strategy contributes to the livelihoods of many communities throughout the Mediterranean, and is believed to foster the sustainable management of vulnerable ecosystems, like rangelands and mountain pastures. Understanding the complex history of transhumance is of crucial importance to assess the long-term influence of this practice on the rural landscapes of the Mediterranean. The PLAS project (Pastoralism and Landscape Sustainability) investigates the relationship between mobile animal farming and landscapes in different regions and historic periods. By combining archaeological, environmental and computer science with ethnographic methods, PLAS investigates the impact of pastoralism on vegetation, soil and landscape character. One of the case studies of PLAS is Aspromonte, in Calabria (Southern Italy). Here the PLAS team has investigated the environmental impact of pastoral activities during the first half of the 1900s and the consequences of the rapid abandonment of the area in the second half of the century. Preliminary results showed that the effects of transhumance on the territory are far more complex than initially thought, and that the legacy of historic transhumance is still visible in today's abandoned landscapes. The data from Aspromonte and other case studies suggest that long-term analysis is essential to support the protection of traditional pastoral knowledge while promoting the sustainable development of landscapes.

1559. OUT AND ABOUT –A NETWORK OF SHEPHERD PATHS, SETTLEMENTS AND PASTURES IN THE CONTEXT OF ARCHAEOLOGICAL FINDS OF SOUTHERN VELEBIT

Contribution format: Poster  
Contribution authors: Morana Vukovic (Archaeological Museum Zadar)

Velebit has been an area of active transhumant livestock farming, both in the past and today. Only a few families have continuously maintained this way of life, and recently younger generations have been coming back and choosing to return to their roots instead of urban life. At the same time, there is a growing interest among researchers in the Velebit area, its cultural heritage, both archaeological and ethnological, but also an increasing need for interpretation and presentation. Ongoing archaeological research, although still insufficient, continues to reveal details of life on Velebit in the past, with remains from later prehistoric periods being particularly dominant. Ever since prehistory, people have been living in this area, using every advantage it has and overcoming the disadvantages. This limestone area, marked by water scarcity, with its distinct karst features, is synonymous with a difficult and arduous life for today's man. At the same time, Velebit offers countless resources, and man has proven capable of adapting, getting the most out of it, and prospering, both in recent and prehistoric times. Here we will consider several questions: How was the coastal slope of Velebit used in prehistoric times in relation to the mountain's highlands and its relief, and what can traditions and remains from recent times reveal about this? Who used Velebit and for what purposes? Is this mountain a space of union or separation? Can we assume, based on recent transhumance traditions, how prehistoric communities on both sides of the mountain (Liburni and Iapodes) used this space? How do archaeological sites correspond to the remains of recent life, ethnological heritage, and oral traditions? In the end, the question arises, what exactly has changed from prehistoric times to the present day and in what way?

253 TRACKING THE BIOGRAPHY OF METAL JEWELLERY AND CLOTHING COMPONENTS: TECHNOLOGY, MATERIAL, AND (RE)USE

Session theme: 1. On artefacts and beyond  
Session format: Regular session  
Session keywords: jewellery, clothing components, biography of artefacts, metal (production) technology, traces of (re)use,  
Session organisers: Šárka Krupicková (Czech Academy of Sciences, Institute of Archaeology, Brno) – Orsolya

Heinrich-Tamáska (Leibniz Institute for the History and Culture of Eastern Europe (GWZO))

SESSION ABSTRACT

Metal artefacts, especially jewellery and clothing components, often boast remarkably long lifespans. Their biographies unfold through multiple stages, beginning with the selection of materials and the choice of production technologies. The initial phase of this life cycle offers invaluable insight into the socio-economic and cultural contexts of their time (see chaîne opératoire). However, production is merely the beginning of their existence. Once created, these objects enter a broader life cycle, defined by their use within the living society for which they were made. How were they used, and what traces of wear, repair, or functional transformation do they bear? These questions can be answered by tracking signs of usage, wear, and modification, each leaving valuable clues. The story of jewellery and clothing components does not end there. While many pieces were eventually recycled, some have survived through time in their original form, marked by degradation. Over time, these objects re-enter the archaeological record, with their destiny again intertwined with human activity. This renewed phase of existence adds further layers to their history – through cleaning, conservation, restoration, analytical examination, and exhibition preparation. This whole biography, encompassing every stage from production to rediscovery, is the central focus of our research. We are seeking collaborations with colleagues and teams who have expertise in examining the impacts of individual phases on metal archaeological artefacts. Our particular interest lies in jewellery and clothing components crafted from precious and non-ferrous metals across various periods of human history. We welcome studies exploring both scientific and restoration-related aspects of this research topic.

CONTRIBUTION ABSTRACTS

187. TWO EARLY MEDIEVAL GOLD JEWELS FROM BOHEMIA AND THEIR DIFFERENT (?) BIOGRAPHIES

Contribution format: Oral  
Contribution authors: Nadezda Profantová (Institute of Archaeology of the CAS, Prague, v.v.i.)

I show the problem of jewellery biography on the basis of two exclusive finds: a gold three-sided pendant with granulation from Sadská (7th cent.) and a gold bead decorated with filigree and pseudo-filigree from the production centre of Tismice, both in Middle Bohemia (CZ). The pendant probably from an earring is a highly sophisticated small work. It was made in the Late Roman Period or more probably in a Byzantine workshop. It was probably imported to Bohemia in the 7th century, or, less likely it could be a reuse of a Late Roman piece (4th -5th cent.). The pearl from Tismice was found near the place where a goldsmith's workshop operated in the 1st - 2nd third of the 9th century. The pearl, consisting of 12 components, was a local product, used in the 2nd third of the 9th century and lost at most in the 60s of 9th century.

834. JEWELLERY TYPE AS A „MENTAL CONCEPT“. THE SPREADING OF SELECTED TYPES OF BYZANTINE LUXURY JEWELLERY IN EARLY MEDIEVAL EUROPE

Contribution format: Oral  
Contribution authors: Šimon Ungerman (Czech Academy of Sciences, Institute of Archaeology, Brno)

The paper focuses on the very beginning of the manufacturing process of early medieval luxury jewellery. There was an indispensable precondition: the goldsmith had to have a precise idea, how the final product would look like (its size, shape, construction, decoration etc.). I propose to call this idea a „mental concept“ of the given piece of jewellery. The craftsman did not have to „invent every piece of jewellery from scratch“ – in a given region and period, there must have been a certain quantity of broadly shared mental concepts of jewellery. As a result, we are able to identify a range of jewellery types in the archaeological record. Of course, every archeological type is a scientific abstraction based on a few diagnostic features. Therefore, we should distinguish a mental concept of an early medieval craftsman from an archaeological type as a scientific category. In the second part of the paper, I devote my attention to three types of early medieval jewellery with supra-regional distribution: finger-rings with a hollow hemispherical bezel, earrings with four beads made of sheet metal and earrings with three basket beads made of filigree wire. These types were created in the Byzantine Empire and they spread from the eastern Mediterranean via the Balkans into Central and/or Eastern Europe. An inseparable part of this process was local adaptation when as a consequence of local production, the specimens of the discussed types acquired a specific decorative features, different sizes, etc. in each region. But, the overall form of these jewellery types was still respected, even across the vast geographical area – there must have been the widely shared mental concepts of these types. The different mechanisms and motivations of spreading of the types (or underlying mental concepts) can be discussed.



1112. THE NETWORKS OF THE HORNED HELMETS

Contribution format: Oral  
Contribution authors: Heide Noergaard (Moesgaard Museum)

In Denmark, the only real human-sized horned helmets were found in a bog in 1942. These helmets have been dated by archaeologists to the late Bronze Age for centuries. In 2019, new scientific AMS dates revealed that the helmets were most likely in use at the transition from the NBA IV to the NBA V, a period that saw huge changes in material culture and worldviews. New technological analyses of these bronze helmets have been carried out and should clarify once and for all whether the helmets were a local product or imported to Denmark. However, technological and archaeometallurgical research has revealed a much more detailed story. This presentation will provide a detailed insight into the manufacture of the helmets, revealing a multi-layered and long-term biography of a ritual object. By comparing the ornamental details and technological features of protective armour in Central Europe, it was possible to rule out the possibility that these helmets were derived from Central European helmets. A 3D scan and digital reconstruction made it possible to identify the individual components of the helmets and their origin. The archaeometallurgical and organic examination allowed the identification of the artisans behind the helmets, and the identification of specific technological patterns allowed the determination of the helmet’s place of origin. Through the presentation of a detailed technological biography, the story of the Viksø helmet will be told - a story of reuse, multiple identities and a new world view.

1207. NEW INSIDES TO THE SILVER FINDS OF ČAĎAVICA (CROATIA) FROM TH EARLY MIDDLE AGE

Contribution format: Oral  
Contribution authors: Orsolya Mariann Heinrich-Tamaska (Leibniz Institute for the History and Culture of Eastern Europe (GWZO)) – Stephen Merkel (University of Amsterdam)

In this paper we are going to present new insights to the finds from ČaĎavica (jewellery and belt components), which are mostly interpreted as objects from a grave of the 7th century AD. 2023 we had the chance to carry out archaeometallurgical investigations, based on the comprehensive and comparative analysis of the finds. It had three main research objectives: to identify the types of alloys and the origin of the used silver, to identify the surface treatments and/or modifications of the metal objects and to reconstruct the stages involved in the metallurgical and manufacturing process. This provides the starting point for identifying manufacturing attributes and for narrowing down the area of origin of these products. From a culture-historical point of view it is of fundamental importance to be able to locate the roots of such technical know-how. The analyses made it possible to answer associated questions to origin and to transfer of technology. The archaeometric data obtained provide the basis for future comparative research in the wider distribution area of contemporary silver and gold finds.

1345. ARCHAIC ELEMENTS IN 9TH-CENTURY GOLDSMITHING IN MORAVIA: MATERIAL RECYCLING OR RECEPTION OF IDEAS?

Contribution format: Oral  
Contribution authors: Lumír Poláček (Czech Academy of Sciences, Institute of Archaeology, Brno)

Although archaic elements are not frequently found in the archaeological record of 9th-century Moravian settlements and cemeteries, they do appear with relative regularity. This study examines materials of ancient origin that were repurposed as components of Great Moravian artistic craftsmanship. It seeks to address three key questions: (1) Were archaic elements intentionally or incidentally used in the 9th century? (2) Were Moravians aware of the archaic origins of these components? (3) Could they have attributed special significance to them? The aim of this study is to determine whether their presence reflects mere material recycling as part of the 9th-century resource base or rather the reception of ideas. Antique gems incorporated into early medieval decorative artefacts and jewellery serve as particularly suitable case studies for exploring these questions, as they are relatively easy to identify and date. Several luxury objects from early medieval Moravia feature gems prominently set into their visible surfaces. An intriguing detail is that some gems were placed with their engravings facing downward, an approach sometimes interpreted as an attempt by Christian artisans or patrons to conceal pagan motifs. However, such a practice would contradict the true purpose of these objects, as it would diminish their representative and aesthetic value. This raises doubts as to whether Moravian elites (apart from ecclesiastical circles) possessed an awareness of the archaic, specifically antique, roots of their own culture. A comparison of gem application in Moravian jewellery with similar practices among the Avars and the Franks may provide deeper insights into the mindset of the inhabitants of 9th-century Mojmířid Moravia. This study was supported by the Czech Academy of Sciences, within the research programme Strategie AV21.

1433. “OBJECT BIOGRAPHIES“ OF GOLD-, SILVER- AND COPPER-ALLOY EARRINGS FROM AVAR-PERIOD ARCHAEOLOGICAL CONTEXTS (6TH TO 9TH CENTURY AD)

Contribution format: Oral  
Contribution authors: Birgit Bühler (Vienna Institute for Archaeological Science (VIAS), University of Vienna)

Archaeometallurgical research can be essential for identifying cultural traditions and technology transfer in archaeological contexts. Frequently, within a given framework of technological necessities for creating a particular effect in metalworking, a number of choices were available to metalworkers: The technical decisions taken in each case depended on the craftsperson’s skills, personal preferences, and cultural background, as well as on the demands of the customer regarding motifs, style, material and ornamental techniques of the finished product. The material culture of the Avar empire in the Carpathian Basin (late 6th to early 9th century AD) can be perceived as a mixture of diverse cultural influences, reflecting the heterogeneous, multi-cultural population of the Avar realm: In particular, “Avar” and “Byzantine” jewellery production appears to have been closely linked, with high prestige attributed to top-quality products imported from the Byzantine realm. The aim of this paper is to discuss several “object biographies“ of gold-, silver- and copper-alloy earrings from Avar-period archaeological contexts (6th to 9th century AD), with a focus on the production technology of a variety of pyramid-shaped and spherical earring types.

1538. TRACES OF USE ON CHASED SHEET-METAL SPHERICAL BUTTONS (9TH CENTURY, CZECH REPUBLIC) FROM AN EXPERIMENTAL PERSPECTIVE

Contribution format: Oral  
Contribution authors: Šárka Krupicková – Michał Płygawko – Martin Fořt – Tomáš Vlasatý (Czech Academy of Sciences, Institute of Archaeology, Brno)

Jewellery and clothing accessories represent a significant cultural phenomenon within early medieval material culture, embodying the integration of diverse cultural influences and serving as an important aspect of regional identities, particularly among elites. Sheet-metal spherical buttons with chased decoration are a regionally specific type of artefact primarily associated with grave finds from Central Europe. Due to the absence of written sources or iconographic evidence, uncertainties persist regarding their application to garments and their functional role in a living society. Therefore, surface analysis is crucial for understanding traces of use. A targeted interdisciplinary experimental study was conducted to address questions related to the use of these buttons. This research involved a team comprising an archaeologist, a jeweller, an SEM analyst, and reenactors. Scientific replicas of the buttons, faithfully reproduced using original jewellery-making techniques and corresponding to the material composition of the originals, were tested in a controlled experiment. The study included their application, presumed manipulation, and wearability assessment. This contribution will introduce the findings of the experiments carried out so far and discuss their significance for understanding the early medieval Central European elite and its clothing traditions. The research is supported by the Czech Academy of Sciences grant programme Strategy AV21.

2230. OBSOLETE JEWELLERY IN BARBARIAN BURIALS OF THE ROMAN TIME IN THE NORTH PONTIC REGION

Contribution format: Oral  
Contribution authors: Yevheniia Velychko (National Museum of the History of Ukraine)

Jewellery and elite objects much older than the burial itself are frequently found in the graves of barbarians of the Roman period in the North Pontic region. The grave of the Sarmatian princess in the Nohaichynskiy Kurgan is a striking example of this - the burial of the 1st century AD was accompanied by luxurious Hellenistic jewellery. It is far from the only case for Sarmatian sites of the 1st - first half of the 2nd centuries AD, often accompanied by centuries-older decorations. Some of these jewellery have traces of repair; some were completed, and some were remade or reused as a part of new adornments. What was the reason for overstaying? Were these objects an inheritance passed down from mother to daughter over a long period? Or were they a kind of reflection of the political life in the region: these decorations could be a part of the luxurious gifts with which barbarian leaders were appeased? Although this jewellery was out of fashion in the Roman world, it was ideally suited to barbarian tastes, who loved bright polychromy. Was the repair of such jewellery evidence that it had exceptional value for its owners, or were they being remade for reuse in barbarian fashion? In some cases, the remade directly points to the last; sometimes, it is even possible to assume that it was connected with local beliefs and rituals.



2373. “SHABBY CHIC”: OVERWORN, REPAIRED AND TRANSFORMED JEWELLERY FROM THE EASTERN PART OF THE CARPATHIAN BASIN IN THE 6TH CENTURY AD

**Contribution format:** Oral  
**Contribution authors:** Eszter Horváth (Institute of Archaeology, Eötvös Loránt University, Research Centre for the Humanities) – Viktória Mozgai – Bernadett Bajnóczi (HUN-REN Research Centre for Astronomy and Earth Sciences)

During the first two thirds of the 6th century AD, the territory of the Carpathian Basin was ruled by two Germanic tribes, the Eastern-Germanic Gepids and the Western Germanic Langobards. In spite of their different roots and histories, the two peoples were linked by a period spent in each other’s neighbourhood, marked by wars and alliances. Jewellery and clothing accessories, decorated with various colourful gemstones and goldsmith’s techniques to produce colour effects, were a representative part of their material culture. The polychrome artefacts usually manifest the high-end arts and crafts. Their production required a high level of knowledge, organisation, and networking, preferring precious raw materials, obtained even through long-distance trade links, and sophisticated manufacturing processes, carried out by skilled craftsmen, relying on a well-developed infrastructure. Despite their general similarity, the polychrome metalwork pieces from the two Germanic kingdoms differ in many aspects, not only in the way they are made and decorated, but also in the degree of wear. Traces of prolonged use, intensive wear, repair and functional transformation are not occasional but common features of artefacts unearthed from the territory of the Gepidic Kingdom. The question arises as to why excessively worn objects are so over-represented in this period and region. In order to answer this question, a dozen of examples, mostly brooches or other clothing accessories transformed from them were selected for scientific study. Optical microscope observations and analytical measurements revealed a correlation between the technological and material characteristics and the wearability of the objects. This study presents the selected artefacts, focusing on their general features and the typical traces of use, repair and transformation. By interpreting the results of our analysis, we outline possible reasons for their generally worn condition and shed light on the socio-economic and cultural context of the phenomenon.

1761. REST WITH PIECES? WORN AND FRAGMENTED METALWORK ON A VIKING AGE BURIAL SITE

**Contribution format:** Poster  
**Contribution authors:** Bo Jensen (Kroppedal Museum)

Six of the 46 Viking Age inhumation graves excavated at Snubbekorsgård, Zealand, contain fragmented but recognisable metal objects. These graves also contain half the examples of animal bones on-site (three of six), two of the three richest graves, and both examples of filed teeth. These distinct features suggest a distinct social group, with its own a ritual practices. One of these graves also contains a pair of extremely worn oval brooches, which must have been used in at least three different sets of jewellery. We can see parallels to this continued use of very worn jewellery in the Lille Karleby hoard, found some 25 km to the west. Based on these parallels, I argue that artefact biographies and personal and community biographies were deeply entangled with each other, but that the fragmentation hypothesis (Chapman 2000, Chapman & Gaydarska 2007) does not adequately explain the totality of the evidence. This poster is a preliminary presentation of on-going research.

2232. IDENTIFICATION OF CRAFTING TRACES BASED ON SELECTED EXAMPLES OF WOMEN’S JEWELRY FROM THE C ZONE OF THE WIELBARK CULTURE SETTLEMENT

**Contribution format:** Poster  
**Contribution authors:** Irena Podolska-Rutkowska (University of Lodz Doctoral School of Humanities)

The poster presents partial results of research on jewelry produced by the Wielbark culture population, discovered in women’s graves dated to the 2nd and 3rd centuries AD. The proposed project is related to part of the C zone of the Wielbark culture settlement, whose territorial range corresponds to several contemporary regions of Poland (Greater Poland Lakeland, Krajna Lakeland, Tuchola Forest). The C zone is associated with the occurrence of Wielbark culture cemeteries containing rich graves with women’s jewelry made of copper, silver, and gold alloys (fibulas, S-shaped buckles, pendants, beads, bracelets, pins, rings). The chronology of the phenomenon dates back to the beginnings of the settlement of this zone by the Gothic population in phase B2a, gradually abandoned and ending in phase C1b. During studies of Wielbark craftwork, a traceological method of artifact analysis was applied, based on micro- and macroscopic analyses. The use of these methods plays a key role in interpreting production traces, including tool marks and usage traces. Examining the object under magnification reveals both crafting errors and similarities in the traces left by tools. Another positive aspect of this method is the ability to identify the specific characteristics of the goldsmith’s workshop inventory. Finding identical flaws or missing elements in the ornamentation on different artifacts provides information about the undeniable use of the same tool. The result of the research work is a more precise understanding of the craftsman’s (goldsmith-caster-blacksmith) production strategy and the identification of the techniques used to achieve a satisfactory result

– the finished object. The totality of the features detected during the research allows for a broader understanding of the biography of the studied objects.

256 METALLURGY, TIMBER AND CHARCOAL

**Session theme:** 6. Intertwining archaeology, heritage, and museums  
**Session format:** Regular session  
**Session keywords:** Metallurgy, Mining archaeology, Forest exploitation, Timber, Charcoal production, Landscape heritage  
**Session organisers:** Oliver Nelle (Baden-Württemberg State Office for Cultural Heritage, Tree-ring Lab Hemmenhofen) – Aleksandra Fostikov (Institute of History Belgrade) – Mirko Vranić (University of Belgrade, Department of Archaeology, Laboratory for Bioarchaeology)

SESSION ABSTRACT

Mining activities with the aim of metal ore sourcing needed timber for constructions, and processing the ore needed charcoal as fuel and reducing agent. The increased demand for these products have led to changes in the landscape due to deforestation. Thus, the history of mining and metallurgy is closely connected to forest exploitation and relates to traditions of forest workers and charcoal burners, and connects to their heritage as well as the landscape memory. In this session, we welcome contributions addressing aspects of mining archaeology, investigations of timber sourcing, dendrochronology of mining timbers, and charcoal production, may these insights come from surveys, excavations, text explorations, material analysis or – ideally – a combination of several of them in an interdisciplinary approach. Contributions presenting connections of archaeological investigations, heritage valorisation. and museum exhibitions in the field of metallurgy are also very welcome. The idea is to bring together scholars working on different aspects of the theme and raise awareness of the interconnectedness of the different resources, in the discussion of (pre-)historic overexploitation and sustainability. The session will include an update about the work that was started during the previous EAA (EU-COST-action „PoTaRCh“: production and heritage legacy of charcoal, tar, resin and potash, [www.cost.eu/actions/CA22155](http://www.cost.eu/actions/CA22155)), especially with data from the Balkan region as a comparative review between South East and Central Europe. This territory, with the continuity of mining and metallurgy from their beginnings to the present, can provide new information about wood species used in charcoal production, as well as about the production itself. In addition, we want to discuss methodological problems concerning the finding of the charcoal production sites that have a connection with metal production, the status of Potarch in museums and heritage, as well as the idea for a database for Potarch production that we started for our CA22155.

CONTRIBUTION ABSTRACTS

780. THE USE OF TIMBER AND CHARCOAL IN MINING CENTERS OF MEDIEVAL SERBIA: A CASE STUDY FROM BRSKOVO AND RUDNIK

**Contribution format:** Oral  
**Contribution authors:** Mirko Vranic (University of Belgrade, Faculty of Philosophy, Department of Archaeology) – Aleksandra Fostikov (Institute of History Belgrade)

Previous research on medieval mining in the central Balkans, within the borders of medieval Serbia, provided a small amount of physical evidence on the use of timber and charcoal. These fragments were obtained through modern geological research, which cut old mining works with preserved wooden construction, as well as archaeological excavations of shafts and furnaces for ore smelting and charcoal production. Additionally, charred remains were discovered inside the mining and trading settlements, representing remnants of the wooden building structure. For this study, anthracological analysis was conducted on several samples from the most extensively researched centers, Brskovo (northeastern Montenegro) and Rudnik (central Serbia), where intensive medieval mining activities took place from the mid-13th to the mid-15th century. By determining the tree species or genus and comparing it with present-day forest vegetation, as well as using comprehensive data concerning other types of evidence, we aim to reconstruct the appearance, species, and segments of timbers used for these activities, thereby contributing to a deeper understanding of their role and purpose in medieval Serbia. Furthermore, the previous knowledge regarding charcoal production in the mining and metallurgical industries of medieval Serbia will be highlighted, along with directions for future research.



1869. WOOD CONSUMPTION AND IRON PRODUCTION: INSIGHT INTO CHARCOAL USE ALONG THE DRAVA RIVER VALLEY DURING LATE ANTIQUITY/EARLY MIDDLE AGES

Contribution format: Oral  
Contribution authors: Tena Karavidovic – Tajana Sekelj Ivančan (Institute of Archaeology, Zagreb)

Wood consumption played a vital role in ancient societies, serving various everyday purposes such as building, fueling fires, crafting objects, and producing charcoal for metallurgical purposes. An anthracological analysis of charcoal samples unearthed at settlement sites and iron production workspaces in the Drava River Valley (Podravina region, NW Croatia), dating back to Late Antiquity and the Early Middle Ages, reveals distinct patterns in the types of wood utilized. These patterns can be linked to the archaeological context—whether habitational or workspace—and indicate a deliberate selection of wood driven by technological and economic considerations for charcoal production and its use in iron production processes, such as smelting and smithing. The archaeological records of workspaces dedicated to iron production and processing illustrate various activities, including resource preparation, roasting of iron ore, and charcoal production, which were all carried out on-site. By analyzing the natural conditions that support the growth of wood species identified in the archaeological record, along with the formation of bog iron ores in the broader Drava floodplain and the nearby Bilogora Hills, we can infer areas of past resource exploitation. The findings indicate that the organization of iron production and the selection of workspace locations are closely connected to the availability of resources—both wood and ore—and the technological choices made during the iron production process.

1229. A NEW APPROACH FROM PYROTECHNOLOGY: MANAGEMENT FUEL FOR THE PRODUCTION OF COPPER IN THE ATACAMA DESERT, CHILI

Contribution format: Oral  
Contribution authors: Daniela Grimberg (Université Paris 1 Panthéon-Sorbonne | Universidad Católica del Norte | UMR 8068 Temps) – Ariadna Cifuentes (Universidad de Chile) – Valentina Figueroa (Instituto de Investigaciones Arqueológicas y Museo R.P. Gustavo Le Paige S.J. | Universidad Católica del Norte)

Recent studies on metallurgy and pyrotechnology at the Catarpe Túnel archaeological site (1402-1450 cal AD), have shown that procurement and use of woody fuel was a specialized activity adapted to a hyper-arid environment (Grimberg et al., 2024). Indeed, the Atacama Desert, the driest desert in the world, contains and specific natural vegetal resources adapted to different microenvironments, where humidity and water availability vary according to altitude. For the metallurgical furnaces of Catarpe Túnel, in operation during the Inka Period, anthracological and carpological studies have demonstrated a preferential use of carob tree wood, followed secondarily by aquatic grasses and branches of resinous shrubs, all species with remarkable calorific potential and adapted to an extremely dry climate. Likewise, from the analysis of the structural evidence of the metallurgical furnaces studied, it was possible to verify the existence of an area destined for the elaboration of charcoal for metal reduction activities. Apparently, this would have been obtained thanks to the incorporation of lama guano, which allows for the maintenance of constant temperatures for a prolonged period of time, without causing the total combustion of the woody material. In this paper we present new evidence regarding the use of woody fuel from a furnace at the Catarpe Túnel site, approaching it from a pyrotechecnology methodological perspective, from excavation to laboratory analysis. More precisely, we focus on the recording and recovery of anthracological material, in order to understand the strategies used by specialists in metal smelting and the use of fire in an extremely arid environment. Acknowledgements: Fondecyt 1201603, Fondecyt Postdoctoral 3240369, Núcleo Milenio Andes Peat.

517. HISTORIC MINING AND METALLURGY: TIMBER SOURCING AND CHARCOAL PRODUCTION IN THE BLACK FOREST REGION, SW-GERMANY

Contribution format: Oral  
Contribution authors: Oliver Nelle – Sebastian Million (State Office for Cultural Heritage Baden-Württemberg)

The low mountain range of the Schwarzwald (Black Forest) in SW-Germany is rich in metal ores, which were exploited since medieval times. The mines needed timber to stabilise the tunnels and the shafts, and other constructions, as well as wood for fire setting. Wooden remains enable dendrochronological dating of the mining systems. Charcoal was needed to smelt the ore and reduce metals. Especially for iron, a huge quantity of charcoal was produced first in pits during the medieval period, and later in upright mounds covered with a layer of soil material, and their legacies are present in today’s woodland in vast quantities. The charcoal remains in the soil of these production sites, analysed wood-anatomically, are used to investigate the historic tree composition of the woodlands, and its exploitation. With Lidar technology more than 20 000 sites are now known in the Black Forest. The presentation will give an overview of historic mining activities and known historic charcoal production sites in the region.

1906. EXPLORING CHARCOAL AND METAL PRODUCTION IN VITOSHA MOUNTAIN, BULGARIA: THE ROLE OF ETHNOGRAPHY IN ARCHAEOLOGICAL RESEARCH

Contribution format: Oral  
Contribution authors: Mila Andonova-Katsarski (Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences)

This study examines the ethnographic knowledge related to metallurgical activities in the Vitosha Mountain area, adjacent to the Bulgarian capital Sofia, and investigates how this information can enhance archaeological site surveys linked to past metallurgy. Ethnographic sources indicate that gold and iron production have taken place in various mountainous regions for over a century. Gold extraction is primarily associated with gold-bearing river sands, while iron production typically occurs in forested areas where charcoal was produced in designated pit-like structures. These charcoal production sites, known locally as zhizhnya, can still be identified in the mountain landscape due to their specific naming and the evidence of extensive deforestation that resulted from these activities. Similarly, iron ore extraction sites are marked by chimney-shaped kilns, referred to as vidnya, which are commonly found along riverbanks. The preservation of these sites often reflects the specific topography of the area, as they were strategically positioned near sources of magnetite sand that were sieved from the rivers. The interplay between these metallurgical practices highlights unique insights into how raw materials and resources were perceived, including efforts for “forest protection” during the final years of Ottoman rule, as well as attempts to manage these interconnected resources holistically. The continuity of metallurgy and its related industries in the area may serve as a guideline when discussing past metallurgy and charcoal production and most of all – when planning a survey for the identification of archaeological sites, linked to those activities.

2324. ENVIRONMENT OF CHARCOAL BURNING: LEARNING FROM PRACTICE AND ARCHIVE ETHNOGRAPHICAL SOURCES

Contribution format: Oral  
Contribution authors: Anna Varga (Department of Vegetation Ecology, Czech Academy of Sciences, Brno) – Ádám Thiele (Department of Materials Science and Engineering, Budapest University of Technology and Economics)

Charcoal burning is a biodiversity-dependent activity, with consequent significant environmental impacts in both the short and long term. Most of the studies are concerned with the current vegetation of former charcoal kilns or with analysing used wood for burning found in the remains of abandoned production sites. However, there has been scarce information on the environmental impact of active charcoal burning, which would be essential for the reconstruction of former charcoal burning practices and the vegetation and environment surrounding the sites. The aim of this study was to provide information to understand the relationship between charcoal burning and the environment, such as air, soil, water and biodiversity. The first part of research focused on the analysis of written ethnographic sources and archival photographic material. Both source materials refer mainly to the first half of the 20th century and the middle of the 20th century, mainly to Hungary and Hungarian-speaking communities in Romania. The second part of the research is a case study, in which we burned charcoal ourselves and observed step by step the role of the environment and the impact of our activities on it. Generally, the purpose of coal burning determines its relationship with the environment, so it is important to consider the purpose for which the charcoal was burned in site reconstruction. Furthermore, the study of the practice of charcoal burning, like other experimental archaeological practices, is an excellent opportunity to explore the details and hiding aspects.

327. EXPLORING CHARCOAL PRODUCTION IN THE HINTERLANDS OF JEDOVNICE IRONWORKS

Contribution format: Poster  
Contribution authors: Tomáš Pavlon (Institute of Archaeology of the CAS, Brno)

The presented poster showcases a research project on regional charcoal production in relation to its consumption in ironworks. The peak of production is linked to the late modern period and the first century of the industrial era. The research adopts an interdisciplinary approach, combining archaeological and historical methods. The foundation of the study is the evaluation of a digital terrain model and the accompanying localization of relics in the field, sampling of selected relics, dendrochronological dating, metal detector prospection, and archival research. In the current phase of the research, a clear link is evident between charcoal production and a specific area of the former estate, whose owners, the noble Salm family, were operators of iron production. The research focuses on the immediate vicinity of a specific ironworks near the village of Jedovnice, located in the central part of the Drahaný Highlands. Archival sources allow the tradition of professional charcoal burners to be localized to the village of Senetářov, which lies at the heart of regional charcoal production. The charcoal tradition is not well known to the public in the region, and an important part of the project is communication of the outputs to the local communities through articles in local newspapers, public lectures and through a static presentation in the landscape.



258 EMBRACING THE EXTRAORDINARY: MANAGING AND MODELING NON-CONFORMING DATA

Session theme: 2. Intertwined Epistemologies: Transcending the Data – Theory Divide  
Session format: Round table  
Session keywords: data modeling, metadata schema, interpretation, multisensory archaeology, more-than-human archaeology, semantic web  
Session organisers: Chiara Giovannetti (Sapienza University of Rome) – Aida Fadioui – Natalie De Schuytener (University of Antwerp) – Duygu Tarkan (Koç University)

SESSION ABSTRACT

We aim to explore the decision-making processes of modeling archaeological data, the power dynamics inherent to it, and the adequacy of current metadata schemas. Where does erratic, peculiar data fit? How can we work to make our data richer and more expressive? - 1. Politics of data and standards Modeling data is a process where the power is held by the modelers: they decide what should be included or not. Whether it is because categories in standards are not precise enough or not genera. enough, or because we encounter types of information we believe should be recorded but never have been, current metadata schemas feel inadequate. Who should decide what to include/exclude in data models? How do we decide which information is “useful”? How do we represent uncertainty in our data? 2. Materiality and multisensory data Archaeology is an embodied practice; we establish a relationship with the material record that provides unique insights: we perceive colors, textures, smells, but also memories or associations. This abundant information shapes our interpretations, but we do not have the tools to model it. What space do the affective/physical qualities of objects find in our reports? How do we account for individuality while aiming at interoperability? 3.More-than-human approaches Archaeologists are increasingly working to include non-human perspectives, challenging distinctions between culture and nature, subject and object. We acknowledge that landscapes, animals, plants, and even microorganisms shaped human experiences. What type of data should we collect to represent these interactions? How can we model such complex phenomena in a structured way? Are there useful metadata schemas from other disciplines? - We embrace the oddities and peculiarities and promote inclusiveness. Be mindful and respectful of others: this should be a safe place, especially for young researchers, to discuss data modeling, seek advice, and ideate new projects.

259 CLIMATE CHANGE, SETTLEMENT ADAPTATION, FLUVIAL RESPONSES IN PIEDMONT, RIVERINE AND ESTUARINE ENVIRONMENTS

Session theme: 7. Climate Change in the Past and Present  
Session format: Regular session  
Session keywords: fluvial systems, sediment archive , settlement archaeology, geosciences, landscape archaeology  
Session organisers: Laszlo Ferenczi (Univerzita Karlova/Charles University, Prague) – Bergamo Martina – Jacopo Paiano (Ca’ Foscari University of Venice) – Csilla Zatykó (HUN-REN Institute of Archaeology, Research Centre for the Humanities) – Rowin Van Lanen (The Cultural Heritage Agency of the Netherlands)

SESSION ABSTRACT

Human interference in riverine environments extends back to thousands of years. Since the Late Holocene, anthropogenic impact on fluvial eco-systems manifested on landscape-level scale, – affecting the hydrological budget of river systems, sediment transports, geomorphology and connectivity –, and with the advent of Anthropocene, climate conditions too. Thus, the dynamics of fluvial systems were increasingly influenced by a variety of factors, which determined the adaptation strategies of human communities, posing also considerable challenges. The investigation of sediment archives (geoarchaeological evidence) in fluvial landscapes are excellent for exploring the intertwined anthropogenic and geogenic changes and responses, the study of which requires integrated eco-system based approaches, synthesising archaeological, historical, ecological, geomorphological and hydrological data (see e.g. Ghosh et al 2022 – Fluvial systems in the Anthropocene). Advances in geosciences, remote sensing techniques, and GIS modelling provide suitable tools for complex analyses addressing these questions. This session . in line with last year’s session entitled Historical Archaeologies of the Coastal and Fluvial Anthroposphere – invites multidisciplinary and multiscale approaches, case studies, focusing on piedmont, riverine and estuarine landscapes, combining spatial topographical research and geoarchaeological perspectives, and applying a range of techniques (LiDAR, settlement archaeological, sedimentological, geochemical, pollen, OSL, radiocarbon, dendrochronological analyses, etc.) in order to identify different natural and anthropogenic forcing mechanisms

on fluvial systems, to study climate change and human adaptation – with regard to the changing intensity/scale of settlement expansion/contraction and related land use/land cover changes (deforestation, agricultural activities), water management (construction and hydraulic engineering) and fluvial adjustment (stream power, rate and type of erosion/deposition/alluviation processes) within floodplains

CONTRIBUTION ABSTRACTS

1527. (UN)SETTLING WETLANDS: INFRASTRUCTURE AND HUMAN ADAPTATION IN THE VENETIAN LAGOON BETWEEN ROMAN TIMES AND EARLY MIDDLE AGES

Contribution format: Oral  
Contribution authors: Martina Bergamo (Ca’ Foscari University of Venice) – Jacopo Paiano (University of Trento) – Diego Calao (Ca’ Foscari University of Venice)

The contribution aims to analyse human adaptation strategies to the constantly evolving environment of the Venetian Lagoon, focusing on land reclamation and elevation techniques to reshape wetlands into habitable areas preserved over time, preventing flooding and erosion. This issue holds particular significance in the alluvial plain of the western upper Adriatic, which was (and still is) continuously impacted by subsidence, especially in lagoonal areas. Several case studies will be investigated to provide insight into the human-environment relationship from a diachronic perspective, highlighting trends during the transitional period between the Roman era and the Early Middle Ages. Our primary focus will be on two key lagoonal sites studied by the Ca’ Foscari University of Venice, such as the Roman maritime villa of Lio Piccolo and the early medieval emporium of Torcello. These will be compared with other excavated settlements and sites across northeastern Italy. Shedding light on land management techniques and their interactions with aquatic environments can present valuable data for understanding social, economic, and cultural dynamics. As essential infrastructural elements requiring substantial effort, land reclamations and waterfront construction reflect the elites’ ability (and willingness) to invest in shaping the landscape. Furthermore, details about the construction of these reclamations and landfills extending and raising ground levels offer crucial insights into reconstructing the everyday relationship with water in antiquity from an anthropological perspective.

268. LIVING ON RIVER TERRACES: SETTLEMENT DYNAMICS IN THE LOWER WEST MORAVA FLOODPLAIN (SERBIA)

Contribution format: Oral  
Contribution authors: Uglješa Vojvodic – Ivan Bugarski – Milica Radišić (Institute of Archeology, Belgrade) – Marin Bugar (National Museum, Kruševac)

The existence of key routes within established road networks, along with the overall favorable conditions for settling, has resulted in the continuous habitation of the fertile plains and river terraces surrounding the course of the West Morava River from the Paleolithic to the modern era. However, due to the relatively limited archaeological exploration of the area, it has not been possible to determine the existence of potential settlement systems or the dynamics of their changes across different historical periods. Although life along the river and its fertile plains was of exceptional, perhaps even crucial importance for the overall development of settlements in the past, this watercourse contributed to natural hydrological disasters until the modern era. In certain historical periods, such events may have been catastrophic for the existing settlements and detrimental to economic development of society, particularly through their impact on agriculture. To test the hypothesis that frequent flooding of the fertile plains was a key factor in the selection of settlement locations in the past, the authors launched a three-year archaeological survey of the study area in 2018. The results of the surveys, supplemented by data from previous archaeological investigations, as well as recent prospection and rescue excavations that preceded the construction of a motorway there, have to some extent added to the existing knowledge about life along the banks of the West Morava during prehistoric and historical periods. In this context, this study aims to determine the degree to which changes in the river flow and flooding of the West Morava influenced the establishment of permanent and seasonal settlement systems in its lower course. The analysis is based on archaeological research and surveys conducted to date, complemented by the application of 2D and 3D hydraulic modelling in GIS.

505. LANDSCAPE AND LAND USE IN THE LOWER SOMEȘ VALLEY DURING THE MIDDLE AGES

Contribution format: Oral  
Contribution authors: Sebastian Belbe (Satu Mare County Museum)

This paper examines the medieval landscape of the Lower Someș Valley and the settlement patterns in the region. The primary objective is to explore the role of water as natural resource in the daily life of the communities that developed there. The study begins by analyzing information from historical written sources, which is then compared with archaeological data and field observations. These findings are subsequently documented and



mapped using GIS database. Historically, the region was characterized by extensive marshlands and waterways, as attested by both written records and later cartographic evidence. These environmental features significantly shaped the daily lives of the area s inhabitants, often posing challenges to local communities. The establishment, relocation or even abandonment of villages was not uncommon, with archaeological evidence, place names, and historical documents offering insight into these dynamics. The exploitation of rivers and local water resources is documented as early as the 13th to 15th centuries, along with accounts of the adverse effects of such activities.

**1071. FLUVIAL PROCESSES AND MEDIEVAL LANDSCAPE TRANSFORMATION: INTEGRATED LANDSCAPE ANALYSIS OF DESERTED VILLAGES IN THE CZECH REPUBLIC**

**Contribution format:** Oral  
**Contribution authors:** Lukáš Holata (Charles University)

Medieval agriculture reshaped piedmont landscapes, altering soil redistribution and hydrology. This study examines two deserted medieval villages in Central Europe, where well-preserved field systems—protected under woodland canopies—serve as natural archives for studying fluvial processes in medieval agricultural landscapes. Both sites are located at springs, where erosion from medieval fields directly influenced headwater environments, affecting stream development at their sources. A landscape-scale geoarchaeological approach was applied, integrating lidar analysis, paleoenvironmental and pedological proxies. Findings reveal that fluvial processes resulted from natural hydrodynamics and human-induced soil loss. Fields on steep slopes (>20°) were highly susceptible to episodic erosion shaping field boundaries and gradual soil depletion over time. Sedimentation from these fields significantly modified upper stream reaches, influencing hydrology and landform evolution. According to OSL and C14 dating, significant fluvial processes began almost immediately after settlement origin in the 11th/12th century, with substantial soil loss occurring until the mid-14th century. However, written sources and pottery evidence indicate that the area remained in use until the 15th century despite the absence of further significant soil loss. This challenges assumptions that environmental degradation directly caused settlement abandonment and provides a high-resolution perspective on erosion-driven transformations in medieval landscapes.

**348. FISHPONDS, MILLPONDS AND CLIMATE CHANGE RESILIENCE IN THE MEDIEVAL PERIOD? EXAMPLES FROM CZECHIA AND HUNGARY**

**Contribution format:** Oral  
**Contribution authors:** Laszlo Ferenczi (Charles University, Prague)

The paper problematizes the hydrological impact of fishpond and mill construction as a potential response to the deterioration of climate in the Late Medieval Period. Historical evidence from Czechia, Poland and Hungary similarly suggest that during the 14th – 15th centuries the construction of fishponds and mills intiensified. Many references pertain to those monastic estates, which were situated in marginal landscape zones, where medieval settlement expansion led to significant change in land-use cover and potentially increasing erosion phenomena. Comprehensive LiDAR surveys are now available to assess relict and active fishponds, study their morphology and distribution, an. comparatively assess the value of LiDAR data versus cartographical evidence (mostly dating from the last two hundred years, thus representing the more modern state of the landscape). On the one hand, our analysis will build on case studies, exploring the landscape setting of individual sites, and illustrating how the site selection of such facilities could be influnced by natural aspects – in addition to socio-economic considerations. On the other hand, a large-scale GIS analysis will illustrate landscape level patterns, which will provide the opportunity to reflect on the importance of soil archives and sedimentation dynamics ‘responding’ to the above described trend.

**1102. TRANSFORMATIONS OF THE SETTLEMENT NETWORK AS A PROXY FOR CHANGING WATER REGIME (THE EXAMPLE OF BÉKÉS COUNTY, HUNGARY)**

**Contribution format:** Oral  
**Contribution authors:** Beatrix F. Romhányi (Károli Gáspár University of the Reformed Church in Hungary | HUN-REN Archaeological Institute Lendület BASES Research Group)

The settlement network of Békés County and the neighboring medieval counties, especially the western part of Zaránd County, underwent several significant changes in the Middle Ages between the 10th and 16th centuries. The villages of the population that gradually settled after the establishment of the kingdom and continued to practice agriculture were destroyed during the Mongol invasion (1241/1242) and most of them were not repopulated in the second half of the 13th century. In this area, hardly any parishes were recorded in the papal tithe list (1332-1337), although early churches can be located both by archaeological research and by the analysis of early place names. However, the establishment of the Gyula Domain in the 1410s signals another change, which led to the establishment of many new parishes over the next ~130 years. Besides the parish churches, the presence of mendicant friaries that required grain as alms also testifies to the change in land use. In addition to the

Franciscan friary of Gyula, which had existed since the early 15th century, an attempt was made to establish a second Franciscan friary in nearby Gerla in 1531. According to the surviving documents of the Gyula Domain, grain was the main source of income in the first half of the 16th century. The transformation of the settlement network and the associated form of agricultural production (livestock breeding vs. arable farming) ultimately relates to changes in water conditions. Apparently, the changed water regime in this landscape rich in rivers and wetlands influenced both the density of the settlement network and the location of central places. The paper focuses on these transformations, paying particular attention to the shifts of central places that can be reconstructed from written and archaeological sources, thus adding new aspects to the assessment of wetlands.

**1324. SETTLEMENT DYNAMICS IN FLUVIAL LANDSCAPES: A MULTI-PERIOD ANALYSIS OF HUMAN ADAPTATION IN THE TISZA AND KÖRÖS RIVER REGIONS, HUNGARY**

**Contribution format:** Oral  
**Contribution authors:** Csilla Zatyko – Zsófia Masek (HUN-REN RCH Institute of Archaeology) – Gábor Mesterházy (Hungarian National Museum Public Collection Centre, National Institute of Archaeology)

Before the 19th-century river regulation works, the wetlands along the rivers of the Hungarian Great Plain were vast, ecologically sensitive landscapes that significantly influenced both the social and economic activities of past communities. In this presentation, we examine settlement patterns in fluvial landscapes at multiple scales, ranging from individual sites to micro-regions, within the waterlogged environments of the Tisza and Körös Rivers in Eastern Hungary. This paper aims to examine the settlement dynamics of communities and their transformations across specific periods—the Sarmatian period, the Árpáadian Age, and the Late Medieval period. Through a comparative analysis of settlement patterns and settlement forms, we intend to identify the economic, social, and environmental factors that influenced settlement choices and to determine the key parameters used in selecting suitable habitation sites in different periods. Furthermore, we seek to understand the adaptive strategies employed by communities in response to the environmental conditions and their changes, such as river course shifts, flooding, or climate fluctuations. Our research employs a multifaceted methodological approach, integrating large-scale field survey data, geophysical surveys, remote sensing techniques, analysis of botanical remains, together with predictive modelling. By combining these methods, we aim to reconstruct the spatial organization of past landscapes and provide insights into how human-environment interactions shaped settlement structures in these highly dynamic riverine regions.

**2072. IMPROVING THE DATA RESOLUTION OF ENVIRONMENTAL MODELS: AN ANALYSIS OF LONG-TERM TRANSFORMATIONS IN THE KOKAD MIRE REGION OF EASTERN HUNGARY**

**Contribution format:** Oral  
**Contribution authors:** Gábor Mesterházy (Hungarian National Museum, National Institute of Archaeology | ELTE Eötvös Loránd University, Department of Environmental and Landscape Geography) – Ilona Pál – Enikő Magyari (ELTE Eötvös Loránd University, Department of Environmental and Landscape Geography)

The advantages of concurrently examining long-term archaeological settlement patterns alongside environmental changes have proven to be beneficial over the past few decades. Analyses of pollen and multi-proxy palaeoecological data have illuminated how human activities have shaped the landscape, as well as how shifting environmental conditions have necessitated and constrained human adaptation. This study seeks to improve the spatial resolution of palaeoecological models and integrating archaeological settlement patterns into a comprehensive long-term model in the vicinity of Kokad, Eastern Hungary. Our methodology is founded on the premise that land cover classes within the landscape are influenced by environmental factors, allowing for the analysis of various land cover types such as forests, pastures, wetlands, and arable lands. The calculations for optimal land cover were based on the distribution of land cover types of the Second Military Survey of the Habsburg Empire. To assess the environmental attributes of the different land cover types, we utilized landform classification, wetness index, geological data, soil characteristics, and aspect layers in a multi-scale spatial modelling approach. The two-tier weighting technique of the Analytic Hierarchy Process facilitated the determination of probability values for the land cover types at a resolution of 25x25 meters across the entire study area. The precisely dated Holocene pollen record from Kokad mire in the eastern part of the Great Hungarian Plain revealed fluctuations in land cover types and their respective proportions. Using REVEALS modelling of the pollen data, we determined forest, open land and arable land in about 30 km radius of the site. By weighting the individual land cover probability maps, we have emphasized the most suitable land cover for various archaeological periods. Furthermore, the spatial quality of the models was enhanced by integrating archaeological settlement patterns through a multi-scale weighting approach to pinpoint the areas that were most affected.



2045. Δ<sup>13</sup>C AND Δ<sup>18</sup>O STABLE ISOTOPE ANALYSIS ON WATERLOGGED WOOD: A PIONEERING APPROACH TO RECONSTRUCTING MIDDLE HOLOCENE CLIMATE VARIABILITY

**Contribution format:** Poster  
**Contribution authors:** Silvia D'Aquino (Department of Cultural Heritage, University of Salento) – Giuseppe Egidio De Benedetto (Department of Cultural Heritage, University of Salento | Analytical and Isotopic Mass Spectrometry Laboratory) – Cristiano Nicosia (Department of Geosciences, University of Padua) – Milena Primavera (Department of Cultural Heritage, University of Salento)

Reconstructing past climatic conditions, especially short-term variations, poses significant archaeological challenges; often, these events, had very important impact on landscape development, on past human societies, on their socio-economic structures, and on settlements patterns. The recent PRIN funded project entitled The Lord of the Rings (LOTR) aims to produce very detailed reconstructions of the past variations in moisture, rainfall and temperature that occurred in the Middle Holocene (6.5-3.0 cal ka BP interval). In order to address this goal, dendro-isotopic curves are being constructed, i.e. curves representing the annual variations of stable isotope ratios (δ18O and δ13C) obtained from the analysis of single, dendro-dated tree rings. The key study of this research includes an important waterlogged archaeological site dated to the Early-Middle Bronze Age: Oppeano-Via Isolo (VR). This site, located in north-eastern Italy, is known for the optimal conservation of organic material, including many wooden remains such as poles and planks used for the construction of the structures. Our study introduces and evaluates innovative laboratory techniques for the chemical preparation of waterlogged archaeological wood samples prior to isotopic analysis. While the extraction of α-cellulose is a well-established method for dry and charred wood, its application to waterlogged material remains unexplored, with no standardized protocols currently available in the literature. This work is therefore pioneering in its attempt to assess the feasibility of stable isotope analysis on waterlogged wood, addressing key methodological challenges such as cellulose degradation due to prolonged burial. To ensure the reliability of isotopic data, we evaluate the yield of α-cellulose in archaeological samples and assess its purity using infrared spectroscopy (IR). By establishing and refining protocols for the isotopic analysis of waterlogged wood, this study opens new avenues for high-resolution paleoclimatic reconstructions from previously untapped archaeological materials.

260 ARCHAEOLOGY AND HERITAGE SCIENCE. RESEARCH INFRASTRUCTURE NETWORKS AS A PATH TO A SUSTAINABLE FUTURE OF THE SECTOR

**Session theme:** 6. Intertwining archaeology, heritage, and museums  
**Session format:** Discussion session  
**Session keywords:** research infrastructure networks, sustainable growth, heritage science, strategic planning, partnerships, social engagement  
**Session organisers:** Lana Nastja Anzur (Heritage Science Laboratory Ljubljana, University of Ljubljana) – Richard Higham (Institute for Sustainable Heritage University College London) – Brina Zagorc (Department of Evolutionary Anthropology, University of Vienna)

SESSION ABSTRACT

The European Commission defines research infrastructures (RI) as facilities providing resources and services to support research communities in conducting studies and fostering innovation. These include major equipment, scientific data infrastructures, computing systems, and communication networks. Since the 1920s, large-scale research infrastructures have become increasingly vital to scientific progress, particularly in the natural sciences. In the humanities, this trend is marked by the rise of digital platforms, such as the ARIADNE for archaeology. Recent years have seen a shift towards interdisciplinary collaboration within cultural heritage, exemplified by initiatives like the European Research Infrastructure for Heritage Science (ERIHS). Archaeologists play a key role in this field, as evidenced by 2024 ERIHS survey that identified access to research infrastructures, funding, professional organization, and formal training as critical needs within the sector. It also highlighted a significant gap: early-career researchers emphasized the need for greater public engagement, media coverage, and social media presence to highlight the role and impacts of research for the wider public. Based on these findings, it is crucial for the archaeological community to adapt and strengthen its practices to meet evolving needs. This includes leveraging RIs to promote interdisciplinary collaboration, partnerships, formal education, and the development of new funding opportunities while embracing social engagement and responsibility. Addressing these needs in a timely and effective way is essential for the sustainable future of the sector. We invite speakers from heritage science and archaeology to share their insights on leveraging RIs as resources for advancement within broader social and professional contexts. We will highlight strategies for archaeologists working with evolving RIs, focusing on the needs and goals of our sector. Presentations (6 slides in 6 minutes) will foster focused discussions,

aiming to identify gaps, propose innovations, and enhance archaeology’s role in interdisciplinary and societal contexts for a sustainable future of the sector.

CONTRIBUTION ABSTRACTS

1421. E-RIHS (EUROPEAN RESEARCH INFRASTRUCTURE FOR HERITAGE SCIENCE) - IMPRESSIONS FROM SLOVENIAN NODE

**Contribution format:** Oral  
**Contribution authors:** Lana Nastja Anzur (University of Ljubljana)

E-RIHS (European Research Infrastructure for Heritage Science) is a distributed research infrastructure network aimed at supporting the science of interpretation, preservation, and management of cultural heritage. The national node E-RIHS.SI will be established, consisting of mobile and stationary laboratories with accompanying national research infrastructure, a digital laboratory, and access to material collections/archives. The E-RIHS.SI consortium was founded through an agreement between the Institute for the Protection of Cultural Heritage of Slovenia (ZVKDS) and the University of Ljubljana (UL), with additional members joining, including the Jožef Stefan Institute (IJS), the National Institute of Chemistry (KI), the National and University Library (NUK), the University of Maribor (UM), the University of Primorska (UPr), and the Slovenian National Building and Civil Engineering Institute (ZAG). E-RIHS.SI strengthens the leading role of Slovenian heritage science and its international involvement, providing Slovenian cultural and archival institutions with access to research infrastructure for the study and handling of cultural heritage objects—resources that are rarely available and limited in scope. The establishment of E-RIHS.SI promotes collaborative, interdisciplinary research and provides access to state-of-the-art equipment, methodologies, data, and highly skilled personnel. The initiative supports the study of both tangible and intangible heritage, including the conservation, processing, interpretation, and optimal use of data. Heritage science is grounded in natural sciences such as chemistry, physics, biology, computer science, environmental studies, and engineering, but also requires close collaboration with socio-economic sciences and the humanities. Due to its interdisciplinary nature, it demands laboratory, archival, and digital infrastructure. Strategic planning ensures the avoidance of equipment duplication, enhancing the competitiveness of European heritage science. E-RIHS builds on existing initiatives, including IPERION CH, ARIADNE, PARTHENOS, and other project clusters that support E-RIHS integration.

1618. HERISCI: ADVANCING HERITAGE SCIENCE THROUGH INTERDISCIPLINARY COLLABORATION

**Contribution format:** Oral  
**Contribution authors:** Brina Zagorc (Department of Evolutionary Anthropology, University of Vienna | Institute of Anthropological and Spatial Studies, Slovenian Academy of Sciences and Arts | Human Evolution and Archaeological Sciences, University of Vienna) – Lana Anžur (Faculty of Chemistry and Chemical Technology, University of Ljubljana)

HeriSci – Young Professionals in Heritage Science Slovenia is a dynamic organization dedicated to fostering interdisciplinary research and collaboration in heritage science. As the Slovenian branch of the European Association for Students and Young Professionals in Cultural Heritage, HeriSci provides a platform for knowledge exchange, professional networking, and hands-on project engagement. Supported by the ERIH-S platform, HeriSci is involved in a range of initiatives, including the BArCh-Wood project, which examines the impact of environmental changes on the decomposition of archaeological wood in the Ljubljansko barje wetlands. Additionally, the society has played a key role in the documentation and conservation planning of the Church of St. Anthony in Šepulje, employing photogrammetry and conservation assessments in collaboration with national heritage institutions. Through projects like HeriQuest, which explores public perceptions of heritage values, and participation in international forums—including the establishment of an international youth organization for heritage science—HeriSci actively contributes to shaping the future of heritage research. With a strong focus on interdisciplinarity and youth engagement, the organization aims to bridge gaps between research, conservation practice, and public awareness. This presentation will introduce HeriSci’s mission, ongoing projects, and future plans, emphasizing the importance of networking and funding opportunities for young professionals in heritage science.

1990. EXPLORING THE FUTURE OF HERITAGE SCIENCE INFRASTRUCTURES: INSIGHTS FROM BIBLIOMETRIC AND DEMOGRAPHIC ANALYSES

**Contribution format:** Oral  
**Contribution authors:** Richard Higham (University College London)

This presentation explores potential futures of engagement with Heritage Science infrastructures, using results from a forthcoming publication to understand possible futures of the discipline. The publication consists of four studies which investigate the now well-established field of Heritage Science from different perspectives, using



different techniques. The first study presented is a bibliometric study on the expansion of the discipline using machine learning, this is followed by a bibliometric analysis of the interdisciplinary impact of the field. Thirdly a summary of case study looking into the carers of Heritage Science graduates is presented , as are, the key findings of a sector-wide questionnaire on the demographics of Heritage scientists. The results these studies are presented to show how the rapidly expanding field of Heritage Science has evolved over time and has vast interdisciplinary impacts. These findings are then used to identify key issues and further areas of focus for Heritage Science as a discipline, ending with suggestions on how these issues and areas can potentially be addressed through engagement with research infrastructures such as the European infrastructure for Heritage Science.

1459. HARD AND SOFT. DARIAH RESEARCH INFRASTRUCTURE FOR POLISH ARCHAEOLOGY

**Contribution format:** Poster  
**Contribution authors:** Marcin Maciejewski (Institute of Archaeology, Maria Curie-Skłodowska University) – Julia Chyla – Arkadiusz Sołtysiak (Faculty of Archaeology, University of Warsaw) – Wojciech Fenrich (Interdisciplinary Centre for Mathematical and Computational Modelling, University of Warsaw) – Kamil Filipek (Center for Artificial Intelligence and Computer Modeling, Maria Curie-Skłodowska University)

The DARIAH-PL (Digital Research Infrastructure for the Arts and Humanities) consortium is part of the international DARIAH ERIC infrastructure, which has been operating in Poland since 2014. Its aim is to develop digital research and infrastructure that ensures broad, free access to its tools. This not only enables progress in the research itself but also extends the distribution and absorption of knowledge about European cultural heritage by every person living in Europe. Since 2021, projects have been carried out to build research infrastructure across various disciplines.. In the case of archaeology, this infrastructure includes both so-called hard tools, i.e. research equipment, for non-invasive surveys, landscape analysis (including the use of Geographical Information Systems), digital documentation, development of heritage digital twins, digitisation of archival resources, as well as software solutions. The main current challenge is the development of a digital research data repository integrated with a set of tools facilitating data search (chatbot) and analysis of variable archaeological data gathered by Polish archaeologists across the globe. This poster is part of the DARIAH-PL Digital Research Infrastructure for the Arts and Humanities (KPOD.01.18-IW.03-0013/23) project funded by the European Union NextGenerationEU, Poland's National Recovery and Resilience Plan A2.4.1 Investment in the development of research capacities Scheme A: Research Infrastructure - projects from the Polish Map of Research Infrastructure (PMIB).

261 THERE IS LIFE OUTSIDE THE BOX: ALTERNATIVE CAREER PATHS IN ARCHAEOLOGY

**Session theme:** 4. De nobis fabula narratur: archaeological practice and a profession in flux  
**Session format:** Workshop  
**Session keywords:** professional development, transferable skills, wellbeing, precarity, freelancing, academia  
**Session organisers:** Alexandra Dolea (Freelance | European Mentoring and Coaching Council | Professional Women Network) – Laura Coltofean (EAA Education, Training and Professional Development Advisory Committee | Archaeology and Gender in Europe (AGE) Community of the EAA | Early Career Archaeologists (ECA) Community of the EAA) – Daniela Hofmann (University of Bergen | EAA Education, Training and Professional Development Advisory Committee) – Maria Mina (University of the Aegean | EAA Education, Training and Professional Development Advisory Committee | Archaeology and Gender in Europe (AGE) Community of the EAA)  
**Session speakers:** Rosie Bonté (Brepols Publishers) – Maxime Brami (University of Mainz | Early Career Archaeologists Community of the EAA) – Laura Coltofean (EAA Education, Training and Professional Development Advisory Committee | Archaeology and Gender in Europe Community of the EAA | Early Career Archaeologists Community of the EAA) – Alexandra Dolea (Freelance) – Daniela Hofmann (University of Bergen | EAA Education, Training and Professional Development Advisory Committee) – Maria Mina (University of the Aegean | EAA Education, Training and Professional Development Advisory Committee | Archaeology and Gender in Europe Community of the EAA) – Jona Schlegel (Freelance) – Polona Janežič (Slovenian Academy of Sciences and Arts, Institute of Archaeology | Freelance) – Paulina Szymańska (Independent reasearcher)

SESSION ABSTRACT

This workshop invites archaeologists to think outside the box and reflect on the diverse field that archaeology has become today – not in terms of the richness of archaeological subfields and research themes, but in terms of the multitude and often unacknowledged career possibilities that exist within it. It challenges common and traditional perceptions within the archaeological community according to which the profession is – and should be – mainly practiced in academic, museum or commercial contexts and that these are the only valid trajectories that bring professional and personal fulfilment, opportunities and recognition, and (eventually) a more or less satisfying income. The workshop brings awareness to the pressing current realities that contradict these perceptions, e.g., the crisis and precarity on the archaeological job market, the increasing number of reports of toxic work relationships and environments, and the personal and professional struggles that all these generate and are often experienced in silence and isolation. It argues for the normalization of the idea that alternative and non-linear professional paths in archaeology are as valid and fulfilling as the traditional ones. These paths can be an option for those who are trying to find their voice and place within the field, consider changing their professional status or transitioning to work outside academia, or wish to craft a professional life that is better adapted to their abilities and needs of wellbeing. The workshop brings together archaeologists of various cultural backgrounds and career stages who discuss their experiences of working in freelancing, science communication, publishing, filmmaking, consultancy and coaching, among other fields, and answer questions about transferable skills and following non-traditional paths in archaeology. The workshop is organized with the support of the EAA's Education, Training, and Professional Development Advisory Committee, its Archaeology and Gender in Europe Community and its Early Career Archaeologists Community.

264 EXPLORING THE BUILDING BLOCKS FOR ARCHAEOLOGICAL TRAINING AND SKILL ACQUISITION

**Session theme:** 3. Exploring methods in research, education and communication  
**Session format:** Round table  
**Session keywords:** Skills, Training , Methods, Standards  
**Session organisers:** Cara Jones (Chartered Institute for Archaeologists) – Pirjo Hamar. (Museovirasto)  
**Session speakers:** Cara Jones (Chartered Institute for Archaeologists ) – Pirjo Hamari (Museovirasto) – Anna Welch (Chartered Institute for Archaeologists) – Jesús Brufal (Ciències de l'Antiguitat i de l'Edat Mitjana) – Anna Bach Gomez (Universitat Autònoma Barcelona)

SESSION ABSTRACT

We know that targeted training and skill development initiatives can support individuals on a sustainable pathway to and through a career in archaeology, but we also know that it is a challenge to make these initiatives accessible to all. Developing firm foundations or building blocks which can underpin mechanisms like training schemes, CPD events and formal qualifications can help benchmark every training intervention against a recognisable standard and can go some way to supporting a co-ordinated approach to skill acquisition. However, developing those foundations or ‘blocks’ can be a challenge in itself – challenges which include resource, capacity and even the skills and knowledge it takes to create these standards. Organised by members of the EAA Community for teaching and training of archaeologists, this discussion session seeks to

- Explore the foundations or ‘blocks’ that may exist in your individual areas of practice which help benchmark training interventions
- Understand how the foundations or ‘blocks’ can support sustainable pathway development for careers by underpinning qualifications, micro-credentials, CPD events and work-based training
- Identify mechanisms for creating these foundations or ‘blocks’ which can then go on to form a framework for skill development initiatives
- Discover how we, as skill development practitioners, can ensure that these foundations or ‘blocks’ are sustainable
- Discuss how we identify the skill gaps and skill needs required to inform the guiding principles and maintenance of these foundations or ‘blocks’

267 INTERTWINED CROP HISTORIES: A MULTIDISCIPLINARY APPROACH

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Regular session  
**Session keywords:** agricultural diffusion, crop evolution, agricultural history, archaeobotany, ethnobotany, archaeological science  
**Session organisers:** Daniel Fuks (—) – Rachele Pierini (CTR, Saxo Institute, University of Copenhagen)



SESSION ABSTRACT

In the contemporary context of global food security and sustainability, studying ancient and recent trajectories of cultivated plants is as relevant as ever. Multidisciplinary approaches to crop histories have a long historiography but are often lacking in contemporary research. This session, organized in collaboration with the newly formed Crop History Consortium, seeks to illuminate the value of interdisciplinary and mixed methods approaches in tracing the diffusion and evolution of agricultural crop plants. We invite contributions that demonstrate innovative methods, applications or synergies across fields such as archaeobotany, ethnobotany, linguistics, historical studies, stable isotope analyses, ancient DNA and other biomolecular analyses, additional archaeological sciences and other fields. We are particularly interested in the cultivation, utilization and movement of crops in historical periods, mostly of the past 3,000 years, although we welcome all studies exploring post-domestication crop histories. This session aims to foster dialogue among scholars to enhance our collective insights into agricultural diffusion, crop evolution, and the intertwined narratives of human civilization.

CONTRIBUTION ABSTRACTS

1343. THE ISLAMIC GREEN REVOLUTION 50 YEARS ON

**Contribution format:** Oral  
**Contribution authors:** Daniel Fuks (—)

Last year, Andrew Watson passed away, 50 years after the publication of his pioneering 1974 article, which offered the first comprehensive argument that the early Islamic caliphates transformed agriculture across the Middle East and Mediterranean, ca. 700–1100 CE. His “Islamic Green Revolution” (IGR) described a unique Islamicate contribution to long-term agricultural change that involved unprecedented dispersal of sub/tropical crops, along with associated agricultural knowledge, technology, infrastructure, and impetus. Today, the IGR is one of a handful of canonical agrarian “revolutions” in history and Watson’s ideas continue to influence scholarship widely. In a paper entitled “Innovation or Preservation?”, originally presented at the 2018 EAA in Barcelona, I presented guidelines for assessing archaeobotanical evidence for new introductions, with relevance to understanding the Islamic Green Revolution (IGR) and agricultural transformations in general. That paper advocated applying these guidelines to a multi-regional, crop-by-crop approach to assessing the evidence for the IGR. Seven years later, this paper takes stock of the progress made in this direction, presenting a bird’s eye view of current evidence for the IGR and first millennium CE crop diffusion in the Middle East and Mediterranean. In particular, it will summarize insights gleaned from the regional synthesis papers on first millennium CE crop introductions published in the “Moving Plants” special issue of *Vegetation History and Archaeobotany*. Some key research questions and a proposed agenda for future work on this topic will also be presented.

1334. A TALE OF TWO AGRICULTURAL REVOLUTIONS: CROP INTRODUCTIONS IN THE LONG FIRST MILLENNIUM CE SOUTHERN LEVANT

**Contribution format:** Oral  
**Contribution authors:** Annette Hansen (Vrije Universiteit Brussel | University of Groningen) – Frits Heinrich (Vrije Universiteit Brussel) – Dafna Langgut (—) – Ehud Weiss (—) – Daniel Fuks (—)

This paper aims to provide a robust regional synthesis of crop diffusion in the southern Levant, with the objective of ascertaining the significance of first millennium CE introductions, including those associated with Roman Agricultural Diffusion (RAD) and the Islamic Green Revolution (IGR). It does so by integrating published archaeobotanical data and written evidence from multiple periods to identify the earliest attestations of crop taxa. We present the earliest evidence for 80 crops in the region from the Neolithic until the medieval period, focusing on ‘the long first millennium CE’. We will not only consider first finds, but also, where possible, the qualitative evidence for adoption and entrenchment of these crop plants in this region. Our findings indicate that RAD crops are numerically more significant than IGR crops, although the difference is greater in the archaeobotanical record compared with the textual evidence. Nearly half of the 80 crops surveyed were introduced to the southern Levant in the first millennium CE, indicating the unprecedented extent of crop introduction during this period.

519. HOW WOOD SUPPLY CHANGES THROUGH TIME (1ST MILLENNIUM BC-7TH CENTURY AD) OF SETTLEMENTS OF THE NORTH-EASTERN OF IBERIAN PENINSULA

**Contribution format:** Oral  
**Contribution authors:** Eva Maria López Castillo – Raquel Piqué Huerta (Universitat Autònoma de Barcelona) – Pere Castanyer Masoliver (Grup de Recerca Arqueològica del Pla de l’Estany) – Oriol

López Bultó (Museu d’Arqueologia de Catalunya) – Ann Barberà Berrocal (Universitat Autònoma de Barcelona) – Joan Frigola Torrent (Grup de Recerca Arqueològica Pla de l’Estany) – Joaquim Tremoleda Trilla (Grups de Recerca Arqueològica Pla de l’Estany) – Enriqueta Pons Brun (Museu d’Arqueologia de Catalunya)

As part of the research in the doctorate’s program, a database is being developed and presented here. The database contains anthracological and dendrological remains, recovered from archaeological sites in the north-eastern Iberian Peninsula, from the Iberian, Roman to Late Antiquity periods, providing new insights into the forest provisioning strategies and forest resources. Many of different settlements in this area, such as Empúries (L’Escala, Girona, Spain), Mas Castellar (Pontós, Girona, Spain), Vilauba (Camós, Girona, Spain) and Can Ring (Besalú, Girona, Spain) are providing some evidence about changes in forest management by the charcoal analysis. Its analysis examines and highlights the use of different wooden species through time, among which oak (*Quercus* sp. deciduous), holm oak (*Quercus* sp. sclerophyllous) and Mediterranean shrubs such as heather (*Erica* sp.) and strawberry tree (*Arbutus unedo*) are the predominant. The results indicate that these species would have grown near the settlements, although the anthracological data also reveal some changes in provisioning activities, with wood supplies being collected at a greater distance from the settlements. Wood was used for different purposes, such as construction, fuel and to make objects. An evolution in collection practices is observed between pre-Roman and Roman times, with an intensification in the use of tree species and an expansion of collecting areas, carrying a wide deforestation. Despite limitations, there is evidence of the selection of other species to promote selective growth for specific uses, such as food, medicines, basketry... This active interaction with the environment is evidence of an adaptation to growing economic needs when arriving the Roman period onwards.

1495. ETRUSCAN CROPS: MOVING BEYOND ‘THE MEDITERRANEAN TRIAD’

**Contribution format:** Oral  
**Contribution authors:** Frijda Schmidt (University of Cambridge)

In the vibrant political landscape of the first millennium BCE, when most notably the Mediterranean Sea developed from a natural barrier into a sphere of interaction for bordering regions, the Etruscans emerged in central Italy as an early urban complex, deeply entangled in the wider networks. Crop husbandry has in this context long been acknowledged as a central economic mainstay, not only to feed the people of the growing cities, but also for feeding surpluses into regional and trans-regional exchange. So far studies have principally relied on artefactual evidence, including consumption, storage, and transport vessels. These have identified important trends in the developments from subsistence to market production and nuanced the social role of consumption - but also resulted in an unilateral focus on wine and oil, as these leave the most visible and attributable traces through their characteristic ceramics. Macrobotanical evidence on the other hand has only rarely been integrated into more general discussions, despite the existence of a rich record, notably encompassing several waterlogged and mineralized assemblages that offer unique insights into past plant diversity. Over 50 years after the first systematic retrieval of plant remains from an Etruscan site this paper aims for the first time to summarize the existing legacy records of cereals, legumes, fruits, and nuts into a regional and diachronic synthesis. This data allows to reassess but significantly also to move beyond the Mediterranean triad of grain, grapevines, and olives, and investigate trends in crop exploitation from the Iron Age to the Roman conquest, observing them in context of urbanization, crop diffusion, and the transformation from gathering to cultivation.

1469. NON-CEREAL CROPS IN ASSYRIA: AN ANALYSIS OF TEXTUAL EVIDENCE AND RESEARCH PERSPECTIVES FOR A CROP HISTORY OF THE NEO-ASSYRIAN PERIOD

**Contribution format:** Oral  
**Contribution authors:** Salvatore Gaspa (University of Padua)

This paper will discuss legumes and other vegetables in the archival documents of the Neo-Assyrian Empire, thus from the perspective of the state agricultural policy of which the texts are an expression. The history of the Neo-Assyrian empire (9th to 7th cent. BCE) represents a crucial phase in the history of Iron Age crops. Leguminous and other horticultural plants were minor crops compared to cereal crops, which were the main agricultural investment and food resource in the empire’s economic system. The terminology of this agronomic sector is found in several texts of the Neo-Assyrian period, but only for some names of cultivated plants is identification certain or plausible. The representativeness of legumes and other crop plants in the written sources of the Neo-Assyrian archives and the factors influencing their presence or absence in the texts will be evaluated from different perspectives of analysis. To better understand non-cereal agriculture in Assyria, the study will also review the written evidence of vegetable gardens in Neo-Assyrian sources, as these were the places where legumes and other vegetable plants were regularly grown, both in institutional farmsteads and in family-based households. Archaeobotanical research can confirm and supplement textual information, and offer a more precise documentary framework for a reconstruction of the history of these crops in the period in question.



Although legumes and horticultural plants are less represented in both textual and archaeobotanical records, they certainly played a significant role in both the food system and the agricultural choices of the elite and the rural population of the world’s first empire.

2105. LINKING ARCHAEOBOTANY AND BEYOND: BIAD AS A TOOL FOR MULTIDISCIPLINARY CROP HISTORY RESEARCH

**Contribution format:** Oral  
**Contribution authors:** Natalia Ryabogina (University of Gothenburg) – Claudia Speciale (University of Gothenburg | Catalan Institute of Human Paleoecology and Social Evolution) – Adrian Timpson (University College London)

The Big Interdisciplinary Archaeological Database (BIAD <https://biadwiki.org/>) standardises and consolidates a wide range of archaeological data, providing a pan-European perspective on prehistoric processes from the Balkans to Scandinavia and from the Atlantic coast to the Urals. BIAD data follow a specific template, collecting qualitative and quantitative information from publications and linking it to site data to ensure accuracy and consistency over time. We have made significant progress in collecting archaeobotanical datasets in BIAD and harmonising them for comprehensive analytical research specifically related to crop plants. BIAD is not just an archaeobotanical repository, but a fully fledged interdisciplinary relational database. Plant remains are linked to other data - C14, isotopes, strontium, faunal data and, of course, archaeological information about the site - location, chronology, type, material culture, material objects, human data (burials, individual characteristics, diseases and link to DNA). These links are crucial to understanding the context of plant cultivation and use. BIAD will offer new analytical possibilities for dietary reconstructions, agricultural studies, the study of exchange networks and regional economic variations, all of which are relevant to tracing crop histories. This multidisciplinary approach provides a powerful tool for investigating the cultivation, use and movement of crops over the last few thousand years.

2054. UNRAVELING THE ENIGMA OF DATE PALM CULTIVATION IN THE SOUTHERN LEVANTINE REGION BASED ON ANCIENT SEED MORPHOMETRIC ANALYSIS

**Contribution format:** Oral  
**Contribution authors:** Ernesto Teste (DIADE, University of Montpellier, CIRAD, IRD) – Guy Bar-Oz – Roy Galili (School of Archaeology and Maritime Cultures, University of Haifa) – Daniel Fuks (—) – Roei Shafir (School of Archaeology and Maritime Cultures, University of Haifa) – Meirav Meiri (The Steinhardt Museum of Natural History, Tel Aviv University) – Muriel Gros-Balthazard (DIADE, University of Montpellier, CIRAD, IRD)

Date palm (*Phoenix dactylifera* L.) cultivation in the southern Levant presents a complex history. This study investigates the evolution of date palm cultivation in the Negev desert through comprehensive morphometric analysis of 2,294 archaeological seeds from nine sites spanning Hellenistic to Early Islamic periods (300 BCE - 800 CE). We compared these specimens with 287 archaeological seeds from Egypt and Libya, and approximately 8,000 modern seeds representing cultivated, feral, and wild *Phoenix* populations. Using both linear measurements and geometric morphometrics through Elliptic Fourier Descriptors (EFDs), we identified distinct morphological patterns across sites and periods. Results reveal the Negev’s unique position as a botanical crossroads, evidenced by a balanced ratio of African to Asian morphotypes (1.6:1) compared to North African sites’ strong African dominance (4:1). This pattern reflects the region’s role in connecting African, Arabian, and Asian trade networks. Archaeological seeds showed significant morphological diversity, with 42% matching cultivated morphotypes, 18% wild types, 8% *Phoenix* wild species, and 6% feral types, while 25% remained unclassified. The presence of unclassified specimens could suggest extinct varieties or lost diversity. Notably, sites like Nahal Omer (Early Islamic) and Mezaad Rahel (Hellenistic-Early Roman) yielded exceptionally large and diverse assemblages, indicating intensive local cultivation alongside active trade participation. This study provides new insights into the complex relationship between trade networks, agricultural practices, and cultural exchange in shaping the botanical landscape of the ancient Levant.

2357. LATHYRUS CULTIVATION IN GREECE THROUGH THE AGES: INTEGRATING ARCHAEOBOTANICAL, ETHNOGRAPHIC AND TEXTUAL EVIDENCE

**Contribution format:** Oral  
**Contribution authors:** Soultana Maria Valamoti (School of History and Archaeology, Aristotle University of Thessaloniki, Greece)

Several *Lathyrus* species have been cultivated since the emergence of the first farming communities in Greece and current accounts of traditional agriculture show that they continue to be cultivated in different parts of

mainland Greece and the islands. This paper presents a wealth of archaeobotanical evidence on *Lathyrus sativus*, *Lathyrus clymenum* and *Lathyrus ochrus* from prehistoric and early historic Greece exploring the prehistory and history of these crops in the study region. Based on both archaeobotanical and ancient textual evidence, the presentation discusses the use of these crops in the ancient Greek world and using ethnographic and agromonic evidence of recent years showcases the resilience of these three crops and their survival in modern Greek small scale agriculture and cuisine. The paper offers a *longue duree* examination of the history of these three marginal, crops in this part of southeastern Europe and the East Mediterranean in terms of their significance in people’s agricultural practice and diet,

2280. MYCENAEAN DYE PLANTS: THE MANY LIVES OF KA-NA-KO ‘SAFFLOWER’ (CARTHAMUS TINC-TORIUS L.)

**Contribution format:** Oral  
**Contribution authors:** Rachele Pierini (CTR, Saxo Institute, University of Copenhagen)

Mycenaean tablets in Linear B (1450–1200 BCE) provide written evidence of the term ka-na-ko (*Carthamus tinctorius* L.), commonly known as ‘safflower’ or ‘false saffron.’ The Linear B texts distinguish between two types of ka-na-ko: ‘red’ (e-ru-ta-ra) and ‘white’ (re-u-ka). The red variety, associated with weight measurements, likely refers to the plant’s flowers, while the white variety, measured in dry units, probably pertains to the seeds. This differentiation highlights the Mycenaeans’ diverse uses of safflower, including applications in food, perfume production, medicine, and potentially as a textile dye. This paper focuses on ka-na-ko as a dye plant, specifically its role as a more affordable alternative to saffron for producing a yellow hue. This is possible because safflower contains a water-soluble yellow dye. However, it also contains an alkaline-soluble red dye, making ka-na-ko a potential source of red dyes as well. Given these properties, safflower may have played a significant role in Mycenaean textile production, offering a cost-effective and versatile dyeing material.

1569. CITRUS FRUIT IN THE ANCIENT MEDITERRANEAN: THE IMPACT OF THE ROMAN AGRICULTURAL DIFFUSION (RAD)

**Contribution format:** Oral  
**Contribution authors:** Geoffrey Kron (University of Victoria)

This talk will outline recent research into the origins of citrus fruit cultivation in the Mediterranean, showing that aside from the attested introduction of the sweet orange (*C. sinensis*), and perhaps the pomelo (*C. Maxima*) in the early Islamic period, most of the widely disseminated citrus varieties now found in this region were introduced in the Roman Republic and early Empire, leading to their spread throughout the region. A series of new archaeobotanical analyses of citrus pollen and seeds from Roman Italy, studied using the most up-to-date methods, including scanning electron microscope imaging of pollen, seeds and rinds, and statistical computer modelling of seed morphology to compare archaeological samples with ‘archaic’ modern cultivars has not only provided further clear proof for lemon cultivation, but has also provided strong archaeobotanical evidence for a greater diversity of citrus fruit, with the presence, alongside the lemon (*C. limon*), of sour or Seville orange (*C. aurantium*), lime (*C. aurantifolia*) and mandarin (*C. reticulata*) in Roman Italy. I will also discuss iconographic evidence as well as general historical considerations and results of recent genetic studies corroborating a Roman creation or introduction of the most important cultivars of a range of citrus fruit now found widely distributed throughout the Mediterranean, as well as of other citrus species either definitely or probably introduced by the Romans, including a variety of prized cultivars of the citron (*C. medica*), the chinotto (*C. myrtifolia*), the bergamote (*C. bergamia* Risso & Poit.), the limonette of Marrakech (*C. limetta* Risso) and the Tunisian Chiiri lime.

923. CRACKING THE CODE OF CRYPTIC POLLEN: CAN CHEMOTAXONOMY HELP US UNPACK CEREAL CULTIVATION?

**Contribution format:** Oral  
**Contribution authors:** Faidra Katsi – Matt Kent – Alastair Wills – Michela Mariani – Matt Jones (University of Nottingham) – Phil Jardine (University of Münster) – Wes Fraser (Oxford Brookes University) – Warren Eastwood (University of Birmingham) – Barry Lomax (University of Nottingham)

Since the first evidence of domestication, cereals have been the most common and wide-spread crops used continuously by societies. Our knowledge about the use, cultivation and geographic spread of cereals is primarily based on archaeobotanical macro-remains, which allow for high taxonomic resolution but are patchily distributed through time and space. In contrast, pollen provides continuous records that can be directly linked to palaeoclimate and landscape changes, yet they contribute fairly little to the discussion of cereal cultivation. This is due to some taxonomic uncertainty of cereal pollen; causing challenges to confidently discriminate/identify between pollen from domesticated species and their respective wild relatives using morphological criteria alone. We explore



another avenue for determining the taxonomy of domesticated and wild cereals using the chemical signatures of pollen wall of Poaceae, also known as chemotaxonomy. We were able to classify modern pollen samples with an accuracy of 90%, demonstrating the existence of a strong taxonomic signal. The signal strength suggests that chemotaxonomy might also be a powerful tool for classifying subfossil pollen, assuming that the subfossils exhibit chemical signatures analogous to their modern counterparts. For the first time, we used this method to classify subfossil Poaceae pollen recovered from the sediments of Lake Nar in Türkiye. Here we discuss the potential of this method for classifying cryptic pollen assemblages and its future applications in palaeoecological research. We believe that chemotaxonomy of subfossil pollen will help us reveal not only the adaptation of cereal cultivation in time periods with limited textual sources but also the diffusion of cultivated cereals in prehistory, perhaps beyond the potential of what is possible with archaeobotanical macro-remains.

75. STATUS, DIET AND INTENSIFICATION OF CULTIVATION IN LATE IRON AGE LUISTARI, EURA, SOUTHWESTERN FINLAND

**Contribution format:** Oral  
**Contribution authors:** Tiina Väre (Laboratory of Chronology, Finnish Museum of Natural History, University of Helsinki | Archaeology, University of Oulu) – Heli Etu-Sihvola (Laboratory of Chronology, Finnish Museum of Natural History, University of Helsinki) – Ulla Nordfors (Museum Centre Vapriikki, Tampere | University of Turku) – Elina Sahlstedt (Natural Resources Institute Finland) – Laura Arppe (Laboratory of Chronology, Finnish Museum of Natural History, University of Helsinki)

In the multiperiod burial site of Luistari, Eura, Southwestern Finland, both elaborately and meagerly decorated burials have been identified. A possible connection was examined between the bone and dentin collagen  $\delta^{13}\text{C}$ - ja  $\delta^{15}\text{N}$ -values and the status of the individuals (n=22) based on the value of their grave goods. Pearson CC revealed a negative correlation between the  $\delta^{15}\text{N}$ -values and a status score, which had been previously assigned to 16 of the studied individuals. Additionally, the 22 individuals were divided into two groups: those with elaborate and those with modest graves. As demonstrated by T-testing, individuals with modest graves had significantly higher  $\delta^{15}\text{N}$ -values. These results are in contrast with the usual assumption that high-status individuals had elevated collagen  $\delta^{15}\text{N}$ -values due to consumption of food containing more animal-protein, thus considered of better quality, while common people leaned more heavily on plant nutrition. The studied individuals date to the period of gradual intensification of early cultivation activities in the area. In the north, forests, fisheries, and livestock were safer options to keep hunger at bay. For cultivation to become a reliably productive source of livelihood in the north took much longer compared to the temperate climatic zone and rather than necessity, the adaptation of cultivation in the early phase could have been a manifestation of entrepreneurial spirit and organized by those whose wealth allowed for experimentation. Perhaps in climatically challenging areas, within populations dating to the phase of early intensification of cultivation, the high-status individuals were the ones to produce and consume most of the novel products of cultivation. The commoners could have mostly eaten easily obtainable foods such as fish, elevating their collagen  $\delta^{15}\text{N}$ -values.

1434. ECONOMIC PLANTS FROM MEDIEVAL ISLAMIC SOUTHERN IBERIA: THE ARCHAEOBOTANICAL RECORD

**Contribution format:** Oral  
**Contribution authors:** Antonio Peralta-Gómez (Spanish National Research Council | University of Granada) – Leono. Peña-Chocarro (Spanish National Research Council)

The study of plant remains from Al-Andalus is of particular interest for the study of societies in which Muslims, Christians and Jews coexisted, and is a valuable source of data for the analysis of dietary habits. According to written sources and a limited amount of archaeobotanical data, the plant diet in Iberia during the Middle Ages consisted mainly of cereals, legumes and a large group of fruit trees. The arrival of Islamic communities in the 8th century triggered an agricultural transformation in which new species and technologies were introduced. In this presentation we will focus on the economically important species that have been identified in Islamic sites in southern Iberia and that contribute to our knowledge of agricultural and dietary systems. We will discuss the main cereals, legumes and fruits that have been found, including the presence of new crops that have not been previously recorded in the archaeobotanical record.

1250. ANALYTICAL REASSESSMENT OF ONE OF EUROPE’S LARGEST ARCHAEOLOGICAL BROOMCORN MILLET DEPOSITS AT THE MORTENI SITE (ROMANIA)

**Contribution format:** Poster  
**Contribution authors:** Ana García-Vázquez (ArchaeoScience Division. Research Institute of the University of Bucharest (ICUB)) – Mihaela Golea (“Vasile Pârvan” Institute of Archaeology. Romanian

Academy) – Cristina Mircea (Babeş-Bolyai University) – Marin Cârciumaru (Valahia University of Târgoviște | Museum of Human Evolution and Technology in Paleolithic, Targoviste) – Gabriela Sava (Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering, Măgurele) – Ana Ilie (National Museum Complex “Curtea Domnească”, Târgoviște) – Cătălin Lazăr (ArchaeoScience Division. Research Institute of the University of Bucharest (ICUB))

Broomcorn millet grains (*Panicum miliaceum*) recovered from the Morteni tell (Romania) reveals one of Europe’s largest archaeological deposits, totalling approximately 150 kg. Initially ascribed to the Chalcolithic period and the Gumelnița culture, our radiocarbon dating has shifted the chronology considerably, dating the deposit between 361 and 61 cal BC. This places the grains squarely within the Iron Age period, when broomcorn millet was an established staple across the region. In addition to this analytical approach, we have examined these grains from diverse perspectives, exploring both their morphology and aspects of cultivation management using stable isotope methods. The uncharred, desiccated grains exhibit heterogeneous preservation. While some specimens retain isotopic signatures similar to those of modern, fresh millet, others show clear evidence of nitrogen loss due to diagenetic processes. Notably high  $\delta^{15}\text{N}$  values indicate the application of intensive manuring practices, underscoring the agricultural importance of millet during this era. In addition, the integration of isotopic measurements with FTIR-ATR (Fourier Transform Infrared Spectroscopy with Attenuated Total Reflectance) has enabled a robust assessment of diagenetic alterations affecting the grains, thereby reinforcing the value of multidisciplinary approaches in archaeobotanical investigations. These findings highlight the necessity of incorporating radiocarbon dating to avoid misinterpretations based solely on stratigraphic context. By doing so, the study not only refines the chronological framework for the deposit but also enhances our understanding of ancient agricultural practices in prehistoric Europe.

2393. INTEGRATING ARCHAEOBOTANICAL DATA WITH HISTORICAL RESEARCH ON MEDIEVAL DIET AND AGRICULTURE IN SERBIA

**Contribution format:** Poster  
**Contribution authors:** Ana Smuk (Groningen Institute of Archaeology (GIA), Faculty of Arts, University of Groningen)

Archaeobotanical research in Serbia began in the 1970s at the well-known tell site of Gomolava in the northern part of the country. Since then, the focus has primarily been on prehistoric sites, with occasional data from Roman, Early Byzantine, and Medieval sites. In recent years, several medieval sites have been systematically sampled, offering valuable insights into how people interacted with their environment, cultivated, gathered, and utilized plants in their daily lives. The evolving interaction between established historical sources and newly discovered archaeobotanical data has opened a new chapter within both fields. However, archaeobotanical findings are already challenging historians’ work, calling for more precise use of taxonomy and accurate referring to plant groups. These discoveries have also revised the timelines for the introduction and use of certain plant species in the region, attracting more attention from historians. Key aspects such as diet and widespread economic activities such as agriculture in medieval Serbia, which were often neglected in historical studies, have gained prominence through archaeobotanical research. This paper aims to identify the gaps and challenges within fields, presenting the current state of knowledge from an archaeobotanical perspective while integrating historical sources.

2413. TRACING PLANT DIVERSITY AT THE PREHISTORIC SETTLEMENT OF KOIMISIS IN THIRASIA - AN INTERDISCIPLINARY APPROACH

**Contribution format:** Poster  
**Contribution authors:** Evangelia Stavridou (Department of Botany, School of Biology, Faculty of Sciences, Aristotle University of Thessaloniki) – Eugenia Gkatzogia – Antigoni Mavromati (Laboratory for Interdisciplinary Research in Archaeology, Department of Archaeology, AUTH | PlantCult Lab and Center for Interdisciplinary Research and Innovation, AUTH) – Nikolaos Psonis – Despina Vassou – Nikolaos Poulakakis (Ancient DNA Lab, Institute of Molecular Biology and Biotechnology (IMBB)) – Panagiotis Madesis (and Technology-Hellas 5 Institute of Applied Biosciences, Centre for Research and Technology-Hellas) – Konstantinos Sbonias (Department of History, Ionian University) – Konstantinos Athanasiou (Department of Architecture, Polytechnic School, Aristotle University of Thessaloniki)

This study presents the preliminary results of sedimentary ancient DNA (sedaDNA) metagenomics analysis for the identification of prehistoric plant taxa on the excavation site of the Early and Middle Bronze Age settlement at Koimisis, Thirasia (Greece), with a primary focus on the past plant diversity. Analysis of sedaDNA has been



used in paleoecology as one of the primary methods for reconstructing past environments. We employed a combined approach of targeted sequencing and ancient metagenomic analysis to identify prehistoric plant taxa from ancient DNA extracted directly from the freshly excavated prehistoric layer of the settlement. As one of the first sedaDNA studies conducted in a volcanic region with arid thermal conditions, this research demonstrates the feasibility of recovering plant DNA from challenging soil environments. Archaeobotanical evidence of plant and wood charcoal macro-remains was incorporated to verify the sedaDNA findings and enrich our knowledge of the past vegetation. By examining both crop and non-crop plants, the study enhances our understanding of the prehistoric flora of the settlement. The results are expected to contribute to broader discussions on plant diversity in prehistoric Thirasia and serve as a valuable reference for future research on environmental history in similar contexts.

268 ARCHAEOLOGY, ARTIFICIAL INTELLIGENCE, AND IMAGE ANALYSIS

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Discussion session  
**Session keywords:** Artificial intelligence, Neural networks, Data analysis, Image analysis, Image classification  
**Session organisers:** Sebastian Wärmländer (Stockholm University) – Olga Zagorodnia (The British Museum, London)

SESSION ABSTRACT

Advances in computer-based analysis and classification of images, by using neural networks or artificial intelligence (AI) algorithms, are re-shaping many aspects of digital archaeology. The transformative capacities and possibilities of AI systems are currently evident in the general society, and need no further introduction. This session welcomes full-length papers where artificial intelligence approaches are used to investigate images, in order to answer archaeological questions. A particular focus is the use of AI algorithms to study and/or classify images, either in 2D or 3D format. An important question for archaeological applications is how well AI systems can handle images corresponding to archaeological typologies. Both case studies and methodological studies are welcome. AI and neural network analysis of non-image data could also be accepted, if the results or methods could be extended to investigations of images. Papers on all time periods, geographical regions, and different aspects of archaeology are welcome. We particularly encourage students and young researchers to present their work, and for these participants also short papers can be accepted.

CONTRIBUTION ABSTRACTS

208. AUTOMATED 3D SCANNING OF ARCHAEOLOGICAL ARTEFACTS: A ROBOTIC APPROACH TO HERITAGE DOCUMENTATION

**Contribution format:** Oral  
**Contribution authors:** Arianna Traviglia – Selene Frascella (Istituto Italiano di Tecnologia)

Museums and research centres face significant challenges in documenting archaeological heritage through 3D scanning, primarily due to the time-consuming process and the need for specialised personnel. Moreover, ongoing excavation activities continuously expand collections, often introducing also large quantities of fragmented materials This creates a gap between the number of properly documented artifacts (or fragments) and the volume of new items added to collections each year, or the number of properly catalogued fragments stored. As a result, valuable historical and cultural information is lost from uncatalogued finds, while access to heritage remains limited for both the public and researchers. To address this challenge, the Centre for Cultural Heritage Technologies (CCHT) at the Italian Institute of Technology (IIT) has developed an innovative platform for the automated scanning of archaeological objects, or their fragments. This solution is part of the House of Emerging Technologies–Genoa Project (CTE) and combines an automated digitisation system with robotic artifact handling. The system uses two robotic arms: one, equipped with a gripper, manipulates and rotates the tray on which the objects are placed for scanning, while the other, fitted with a structured light scanner, moves around the artifact to capture a full 360° scan. The resulting data is processed in the cloud, generating high-quality 3D scans of the objects Laboratory tests conducted on Roman-era materials demonstrate that the platform can produce high-resolution scans within a few minutes, showcasing the potential of robotics in archaeological heritage digitisation. By automating the scanning, this technology significantly reduces both the processing time and personnel effort compared to traditional methods. Furthermore, it facilitates the acquisition of large volumes of metadata about cultural heritage objects that might otherwise be lost. Finally, this approach enhances the accessibility of collections, ensuring that crucial information about artefacts can be shared with specialists and the general audience.

967. AUTOMATED ARCHAEOLOGICAL IMAGE ANNOTATION: AI-ASSISTED OBJECT RECOGNITION AND METADATA ENRICHMENT

**Contribution format:** Oral  
**Contribution authors:** Petr Pajdla – Ronald Harasim (Institute of Archaeology of the Czech Academy of Sciences, Brno) – David Novák (Institute of Archaeology of the Czech Academy of Sciences, Prague) – Olga Lečbychová (Institute of Archaeology of the Czech Academy of Sciences, Brno)

The ongoing digitisation of archaeological image archives presents significant opportunities for knowledge discovery, yet also poses considerable challenges, as processing vast amounts of visual data remains a time-intensive task well suited for automation. The application of artificial intelligence (AI) and distant viewing methods offers a scalable solution to enhance the usability, accessibility, and interoperability of large archaeological image archives. Without such automation, achieving comparable results would require years of manual processing. This paper presents a workflow for automatic image annotation, developed to improve (meta)data quality in the Archaeological Map of the Czech Republic (AMCR) repository and discovery services. We outline the training process and pilot implementation of a deep learning model fine-tuned for archaeological datasets, employing ResNet architecture. The workflow enables segmentation and annotation of archaeological images using domain-specific controlled vocabulary terms, facilitating the identification of artefact types and other relevant visual elements. To address the diversity of archaeological photography, we train the model on two distinct image categories: (1) single artefact/find images, typically photographed on standardised backgrounds with scales, and (2) excavation and fieldwork photographs, capturing a wide range of archaeological contexts, from entire excavations and sites to individual trenches and burials. The planned outcomes of this research are: (1) a documented workflow adaptable for similar applications, (2) a ground-truth dataset for training and benchmarking archaeological image recognition models, (3) the implementation of automated annotation into the metadata creation process, particularly for non-professional data providers and the bulk processing of (legacy) data, and (4) enhanced metadata quality in the AMCR repository and discovery services, improving the searchability and accessibility of archaeological images.

1285. EXPLORING DEVELOPMENTAL ASYMMETRY IN THE ADULT ILIAC AURICULAR SURFACE THROUGH ARTIFICIAL INTELLIGENCE

**Contribution format:** Oral  
**Contribution authors:** Michela Amendola (Research Centre for Anthropology and Health (CIAS), University of Coimbra | Centre for Functional Ecology (CFE), University of Coimbra) – David Navega (Research Centre for Anthropology and Health (CIAS), University of Coimbra | Centre for Functional Ecology (CFE), University of Coimbra | National Institute of Legal Medicine and Forensic Sciences (INMLCF, I.P.), Coimbra) – Francisco Curate – Álvaro Monge Calleja (Research Centre for Anthropology and Health (CIAS), University of Coimbra)

The iliac auricular surface plays a crucial role in transmitting axial load from the upper to the lower limbs during human bipedal movement, making it a focal point of anatomical and anthropological research. Shaped by a combination of genetic factors and environmental influences, this joint has recently been described as asymmetrical from fetal development through adolescence. Also, along puberty, it showed a marked change in laterality, where differing tendencies between females and males were also observed. Since the causes, developmental trajectories, and implications for adulthood remain poorly understood, this study aims to investigate whether these trends persist into adulthood. A sample of one hundred adult individuals with well-preserved right and left auricular surfaces from the Coimbra Identified Skeletons Collection (University of Coimbra, Portugal) was analyzed. High-resolution photographs were taken, and geometric morphometric techniques quantified shape differences. Principal Component Analysis (PCA) was conducted on the shape coordinates to identify major patterns of variation. Machine learning algorithms, including exploratory models, classified and predicted asymmetry patterns between sides and their variation by sex. This study refines analytical methods for assessing iliac auricular surface asymmetry, evaluating its potential as a diagnostic tool for sex estimation in forensic and bioarchaeological contexts. It underscores the critical role of identified collections in advancing our understanding of human development, adaptation, and variation. Through the analysis of the iliac auricular surface, this research provides valuable insights into how this structure reflects the complex interplay of biological, biomechanical, and environmental factors throughout an individual’s life. Expanding research to incorporate additional identified collections may further enhance these findings and broaden their applicability.

2282. A MACHINE LEARNING APPROACH TO ESTIMATION OF BURN TEMPERATURE FROM IMAGES OF BURNT TEETH

**Contribution format:** Oral  
**Contribution authors:** Sebastian Wärmländer (Stockholm University)



Determining the burn temperature of burnt bones and teeth is a long-standing problem in both bioarchaeology and forensic science. Different approaches have been tried. Some success has been achieved by using spectroscopic techniques (employing infrared and/or x-ray wavelengths) to monitor heat-induced changes in the microstructure of the bone/tooth mineral (apatite). However, the most obvious feature of bone/teeth that changes with heat treatment is color. Even though this has been known for a long time, quantifying numerical values for color change is not straight-forward. It has therefore proven difficult to include color changes in statistical approaches for estimation of burn temperature. Here, we have tried to address that problem by using a machine learning approach. First, controlled experiments were used to burn animal (pig) teeth at different temperatures. Next, color photographs of the burnt teeth were used to train an algorithm for estimation of burn temperature. The results and lessons learned from these experiments are critically evaluated and discussed.

**2139. FROM WETLAND TO WOODLAND: UNRAVELLING THE RECLAMATION HISTORY OF THE CAMPINE AREA (BELGIUM) THROUGH AI-DRIVEN DIGITISATION OF HISTORICAL MAPS**

**Contribution format:** Poster  
**Contribution authors:** Pieter-Jan Reynaert – Seb Verlinden (KU Leuven) – Pieter Roggemans (Flemish Agency for Agriculture and Fisheries)

Post-medieval reclamation activities - including drainage and agricultural exploitation - have drastically reshaped the appearance of the Campine area, a sandy region in northern Flanders (Belgium). Once dominated by extensive heathlands and marshes, these landscapes have now almost entirely disappeared. Although an abundance of historical sources is available on these reclamation efforts, key uncertainties persist about their spatial and temporal progress. Historical maps, with their detailed depictions of past land use, provide crucial insights to fill these gaps. This poster demonstrates how artificial intelligence can unlock the full potential of historical maps. Using OrthoSeg, a tool that enables map segmentation through deep-learning image classification, different types of land use were accurately vectorised and digitised. As part of interdisciplinary research on past landscape transformations, this case study illustrates how the AI-driven digitisation of historical maps allows for rapid and precise tracing and quantification of land use conversions, enhancing our spatiotemporal understanding of the reclamation history of the Campine area.

**269 KEEPING TOGETHER GEOSPATIAL DATA AND 3D MODELS. HOW TO BRIDGE THE GAP?**

**Session theme:** 3. Exploring methods in research, education and communication  
**Session format:** Discussion session  
**Session keywords:** interoperability, GIS&BIM, data management, Open Science  
**Session organisers:** Angela Bosco (Università di Napoli L’Orientale) – Federica Di Biase (University of Cyprus) – Marco Giglio (Università di Napoli L’Orientale)

**SESSION ABSTRACT**

Archaeological research increasingly relies on the structure of comprehensive data systems to manage and analyze large amounts of information. While repositories have advanced in organizing textual, geospatial, and 3D data, a significant gap remains in combining geospatial information with 3D models in a unified system. Current digital infrastructures tend to compartmentalize these types of data, making it difficult for researchers to access, visualize, and analyze spatial relationships in context. This session addresses the lack of integrated repositories that allow for the seamless merging of geospatial data with 3D models, emphasizing the need for an approach that can enhance both archaeological field and collection data management, as well as site interpretation. Special emphasis is also given to the need to make data accessible and thus discuss how to follow the FAIR guiding principles to support the Open Science movements. . In this session, we invite speakers to discuss on the necessity of creating such repositories, the challenges faced during the theoretical and practical digital infrastructures’ building process, and the current limitations of these repositories. We welcome contributions based on case study analysis as well as theoretical remarks in order to advocate for the development of systems capable of storing, managing, and linking heterogeneous data sets in a coherent and accessible manner.

**CONTRIBUTION ABSTRACTS**

**1684. ADVANCING FORENSIC ARCHAEOLOGY: INTEGRATING LASER SCANNING AND GPR IN THE INVESTIGATION OF A BRONZE AGE MASS GRAVE**

**Contribution format:** Oral  
**Contribution authors:** Marko Pantic (Reality Capture/Hexagon SGI Manager) – Ivan Macella (Segment Manager EMEA - Public Safety & Forensics | Hexagon Geosystems) – Krystian Wojciechowski (Business Development Manager EMEA Forensics)

The presentation focuses on presenting modern technology, a non-invasive survey of discovered burial sites or hidden remains. The tools used were GPR and 3D scanner. The selected example documents a cultural heritage site that has been discovered; however, in any case where a hidden, skeletonized corpse is found, the question must be asked whether a crime is involved. Digital documentation methods make it possible to obtain a precise model of the site without physical contact, which is crucial when investigating sites of exceptional historical and cultural value. The procedures for preparing the test site will be discussed. Necessary steps and practical tips to help in the proper use of ground penetration radar will be indicated. Next, the methodology of the measurement process using a 3D scanner will be discussed. As it is known, it performs a series of non-contact measurements, which makes it possible to collect a full “point cloud” reflecting the geometry and details of the object. The digital model obtained allows virtual reconstruction of the interior of the grave, identification of possible cavities, detection of artifacts and analysis of the technical condition of the structure. The presentation will also highlight the possibility of integrating 3D survey data with GPR results to provide a comprehensive picture of the investigated site. The aim of the presentation is to show that the use of non-invasive technologies, such as 3D scanning, clearly supports the work of forensic archaeologists, enabling detailed documentation and analysis without the risk of damaging valuable artifacts. Examples of international projects that confirm the effectiveness of this method in investigating the site of a deceased body will also be presented. The resulting models of the site or individual artifacts can be used for further independent and simultaneous examinations by appointed experts.

**1723. DEVELOPMENT OF AN ARCHIVE DOCUMENT MANAGEMENT SYSTEM FOR ARCHAEOLOGICAL INVESTIGATIONS IN CUPRA MARITTIMA (AP)**

**Contribution format:** Oral  
**Contribution authors:** Domenico Garzillo (Scuola Superiore Meridionale)

The primary goal of the project is the digitization of both existing and newly acquired archaeological data from the territory of Cupra Marittima in the Marche region (AP, Italy), which currently lacks a coherent system, making it difficult to access and consult. This information was gathered by examining bibliographic and historical archives, as well as the documentation from past excavations in the area. The data will contribute to the creation of georeferenced maps, phase plans of the city and its surrounding territory, and proposals for reconstructing the urban development of the ancient city. The data were integrated into an information system built on a GIS (Geographic Information System) platform. The software used is specifically QGIS (Quantum GIS). The creation of these products will provide valuable support for the planning of future interventions and research in the area, and will also help foster a productive relationship between the needs of the local community and the protection and enhancement of cultural heritage.

**1651. ARCHAEOLOGICAL DATA MEETS BIM: A STUDY ON THE INTEROPERABILITY OF IFC AND CITYGML**

**Contribution format:** Oral  
**Contribution authors:** Giovanni Angrisani (Università degli Studi di Napoli “Federico II”) – Olga Rosignoli (Politecnico di Milano) – Valeria Cera (Università degli Studi di Napoli “Federico II”)

This contribution presents a study conducted on the theme of semantic standards for the exchange of information. By analyzing what is available in the BIM, geospatial and construction sector, two standards fundamentally emerge: IFC and CityGML. The new versions IFC 4X3 and CityGML v.3 possess rich description of physique and spatial entities. While IFC 4.3 introduces specific classes for linear infrastructure, on the other hand, CityGML v.. has refined its core model which now focuses on two concepts of “space” and “spatial boundary” to improve semantics, unify representation, facilitate generalized reasoning about urban fabric, and an improved LOD concept to better support the interoperability with the IFC schema. However, as it often happens in the archaeological field, some of the typical features of vesuvian architecture are missing, from both standards. In the field of research, the project announced in 2022 “BIG\_SMAART - BIM & GIS for Spatial and Muldidimensional Archaeological Artefacts and Techniques” finds its identity, a research line that is part of the PRIN ministerial program. The project is part of the response to the need to satisfy a systematization of the information and documentary corpus for archaeological contexts on a national scale. Besides the semantic insufficiency, the dialogue between the standards is also discussed: it mostly happens through dedicated algorithm and/or software at the



end of an enclosed process, and, a part from very few exceptions, mostly on proprietary CDE. In this article we simulate the transfer of IFC data to CityGML and viceversa using the case study of the domus «casa/panificio» (Regio VIII.6.. 9-11) in the Archaeological Park of Pompeii, a palimpsest of history, spaces and architectural entities of the Roman world between the Republican and High Imperial ages, and highlight the shortcomings of the AEC workflow in use against the needs of Archeological assets.

1598. TOWARDS AN INTEGRATED DATA MODEL FOR ARCHAEOLOGICAL HERITAGE: BIM, GIS, AND ONTOLOGICAL FRAMEWORKS

**Contribution format:** Oral  
**Contribution authors:** Giovanni Borriello – Angela Bosco – Francesca Forte (Università “L’Orientale” di Napoli)

The digital integration of cultural heritage represents a crucial challenge, such as in the context of the Archaeological Park of Pompeii, where conservation and documentation require interoperable tools between BIM (Building Information Modelling) and GIS (Geographic Information Systems). The BIG\_SMAART Project analyses the interoperability between these two systems, highlighting the information loss that arises in digitization and semantic standardization processes. In addition to identifying differences in how architectural entities and materials are represented, which are essential aspects for archaeologists, the research develops a semantic mapping specific to Vesuvian architecture, creating a correspondence matrix between archaeological elements and the solutions provided by existing digital formats. The selected case study is the “Casa Panificio VIII 6,1/8-11” in Pompeii, chosen for its architectural, chronological, and functional complexity, making it a highly relevant testbed for the development of an integrated system. An in-depth analysis of ontologies and thesauri specific to the cultural heritage domain was conducted to simplify interoperability between GIS and BIM. These tools provide essential support in the identification of classes and properties to be integrated into the semantic framework of archaeological built heritage, addressing the conceptual gaps in BIM and GIS, which often do not fully meet the needs of archaeological documentation. The conceptual structure was formalized using specific semantic definitions and relations, identified within ontological models such as CIDOC CRM, particularly its CRMba extension, and ARCO, with its “Construction Description” ontology, as well as vocabularies such as “AAT – Art and Architecture Thesaurus” and “Iconclass”. Among the key results of the BIG\_SMAART Project is the need for a flexible data model, valid for various archaeological contexts, based on an integrated system that leverages diverse ontologies to define the semantics of built heritage.

650. 3D-STONE: A WORKFLOW FOR STRUCTURED LIGHT SCANNING AND DIGITAL TWIN MODELING OF STONE ARCHITECTURAL ELEMENTS IN ARCHAEOLOGY

**Contribution format:** Poster  
**Contribution authors:** Sara Bozza (CNR - Institute of Heritage Science)

The poster will introduce the 3D-STONE Workflow, a comprehensive methodology for structured light scanning and 3D modeling of stone architectural elements, developed and tested as part of the CHANGES Project (CNR-Institute of Heritage Science). The methodology was experimented using the Artec Eva scanner on marble blocks from the Basilica Iulia in the Roman Forum (Rome, Italy), addressing both archaeological and technical-practical challenges. The workflow encompasses all stages, from fieldwork scanning to the creation of high-resolution digital replicas, offering an efficient and reliable process specifically tailored for architectural blocks. These digital replicas are suitable for virtual reconstructions, morphological analyses, state-of-conservation mapping, and enhancing public engagement with monuments. The poster will illustrate the potential of the 3D-STONE workflow within a broader architectural study, exemplified by research on the Basilica Iulia. This monument has been digitally surveyed, resulting in a virtual twin that serves as a 3D repository for data archiving through the Extended Matrix method, ensuring transparency in interpretative processes (with T. Ismaelli, E. Demetrescu, S. Berto, E. Scopinaro, CNR-ISPC). Within this framework, the 3D models of architectural blocks act as digital proxies containing all relevant information while also being employed in a virtual environment for the stone-by-stone architectural reconstruction of the monument.

272 THE WELL-BEING OF ARCHAEOLOGISTS

**Session theme:** 4. De nobis fabula narratur: archaeological practice and a profession in flux  
**Session format:** Round table  
**Session keywords:** national regulations, union work, working environment  
**Session organisers:** Petra Nordin (Arkeologerna, Statens historiska museer) – Cara Jones (Chartered institute for Archaeologists) – Duncan Alexander (Arkeologerna, Statens historiska museer)  
**Session speakers:** Petra Nordin (Arkeologerna, Statens historiska museer) – Valentina Colagrossi (Slang-USB

Union, Mi Riconosci? Association) – Cara Jones (Chartered institute for Archaeologists)

SESSION ABSTRACT

Many sessions focus on scientific findings often in the form of results from archaeological findings and presentations of theses from various universities. The working environment of archaeologists and the working conditions at sites are seldom discussed at conferences. A good relation between union representatives and employers is essential to creating better conditions for a long-lasting, safe and sustainable career in the field. Knowledge of the national laws combined with assistance from agencies and institutions is crucial. This session is focused on workers union responsibilities and the role of the safety officer, in order to achieve better conditions for archaeologists in general and for a sustainable working life within the profession. Regulations and laws in different countries can support efforts from the employer’s side. The goal is to bring together union-interested archaeologists from a range of countries to increase knowledge of the different systems and to contribute to a better working environment for all archaeologists in the long term.

273 CERAMIC TECHNOLOGY AND KNOWLEDGE TRANSMISSION: ANALYTICAL APPROACHES TO UNDERSTANDING CULTURAL PRACTICES AND SOCIAL TRANSFORMATIONS

**Session theme:** 5. Finding the way! Archaeological sciences and opening new research perspectives  
**Session format:** Regular session  
**Session keywords:** Ceramic technology, knowledge transmission, archaeology, cultural practices, analytical techniques  
**Session organisers:** Sonia Pujals Blanch (University of Barcelona) – Judith Peix Visiedo (Institut Català d’Arqueologia Clàssica) – Clàudia Ortega Palacios (University of Barcelona) – Kelly Christodoulou (CCM Group, INN, NCSR Demokritos) – Júlia Coso Álvarez (Pompeu Fabra University (CGM Research Group))

SESSION ABSTRACT

In recent decades, the integration of advanced analytical techniques in archaeology has provided valuable insights into past societies, particularly through the study of ceramics. This session focuses on the technological approaches used to investigate ceramics across different time periods. Moving beyond provenance studies, we explore the significance of ceramic technology in understanding broader cultural, social, and economic dynamics, including the production techniques, material recipes (such as the use of grog and shell tempering), and knowledge transmission across generations. By employing analytical methods, including both non-destructive and multi-technique approaches, scholars can now examine the nuances of ceramic production processes and the underlying cultural shifts that influenced them. These analyses reveal how ancient communities adapted production practices, which, in turn, reflects patterns of social behavior, technological adaptation, and knowledge sharing. Furthermore, this session emphasizes how the study of ceramic technology aids in reconstructing past societies, offering insights into the social roles of craftspeople and the continuity of cultural traditions within the changing landscape. This session invites papers that present new findings and methodological advances in archaeometry, with an emphasis on how technology and transmission of craft knowledge shaped cultural continuity and transformation. By gathering perspectives from diverse chronological frameworks, we aim to foster a comprehensive dialogue on the evolving methods for understanding ceramic artifacts as both material and cultural resources.

CONTRIBUTION ABSTRACTS

1854. THE TRANSMISSION OF CRAFT KNOWLEDGE THROUGH SOCIAL CHANGE IN THE CARPATHIAN BASIN: EXAMINING INNOVATION AND ORGANIZATIONAL SHIFTS THROUGH TECHNICAL CERAMICS

**Contribution format:** Oral  
**Contribution authors:** Lauren Brown (University College Dublin)

This work explores the effect of social and organizational changes on the transmission and application of knowledge through the lens of bronze craft. These transformations are studied through the analysis of the material properties and the chaîne opératoire of technical ceramics (i.e., crucibles, moulds, cores, furnaces) in the context of significant spatial and organizational transformations seen in the Eastern Carpathian Basin pre- and post-16th c BC. Spatial and archaeometric studies are employed to discuss the organizational and technological shifts between these periods. The circulation of craft knowledge as a social actor is a major theme in archaeological



study. However, it is only recently that the effect of “significant” social change on its continuous transmission has been explored beyond ideas of loss and decreased complexity. These more nuanced discussions incorporate themes of choice, resilience, and transformation within cultural practices. A catalogue of all settlements with technological ceramics used in bronze production in both the periods is used in the spatial study. Pre- 16thc ceramic samples come from the sites of Feudvar (Serbia) and Rabe (Serbia). Post- 16th c samples come from Șagu (Romania). Thin-section petrography and XRPD are employed to determine paste recipes and production processes of each ceramic type. Fabric groupings are identified and the specificity or variety of use across artefact types and any modification of new groupings between the two periods will be discussed. The fabric composition, production, and use of domestic ceramics (e.g., pots, furnace linings, daub) are compared to technical ceramics to discuss cross-craft interaction. Groups of the ceramic types from both the pre- and post- periods are compared to discuss the continuation, change, or disuse of production process in social and technological contexts. Modern studies of teaching and learning are applied to flesh out the sensory and cognitive contexts of knowledge transfer.

**2086. KNOWLEDGE TRANSMISSION FROM POTTERY PERSPECTIVE: THE CONTRIBUTION OF EARLY NEOLITHIC WARES FROM THE EASTERN BALKANS (BULGARIA)**

**Contribution format:** Oral  
**Contribution authors:** Tanya Dzhanfezova (St Cyril and St Methodius University of Veliko Tarnovo)

This paper explores the technological approaches of Neolithic craftspeople and communities, encoded in the ways of producing high-quality Early Neolithic ceramic ware. Fragments of such vessels, discovered in the region of the Eastern Balkans (namely settlements located in present-day Bulgaria) shape the main body of evidence. The study aims at a better understanding of the main factors that underlie certain technological choices, as well as at a more comprehensive view on the various technical modes of doing, with special focus on the preference for specific ‘recipes’. The use of clays and pigments, and specifics of the surface treatment, are studied at macro- and micro levels (microscopic and chemical analyses), thus providing new insights into Neolithic pottery technology. The complexity of the processes of introduction (and further development) of pottery technology is tackled by analysing materials from long-lived, multi-layer settlements, located in the focal region. Explored in the broader context of Neolithization, these shape the basis to identify the mechanisms of adoption/adaptation of new technologies and serve as a proxy for the modes of sharing technical knowledge within and among prehistoric communities.

**1018. APPLYING CORRESPONDENCE ANALYSIS TO POTTERY DECORATION MOTIFS: A CASE STUDY FROM THE BISKUPICE SITE 18 (SOUTHERN POLAND)**

**Contribution format:** Oral  
**Contribution authors:** Anna Glod (Institute of Archaeology and Ethnology Polish Academy of Sciences) – Magdalena Moskal-Del Hoyo – Marta Korczyńska-Cappenberg (W. Szafer Institute of Botany, Polish Academy of Sciences)

Statistical methods have been successfully used in archaeology for many years and have many applications. Statistical analyses allow archaeologists to verify research questions and observe new relationships between analyzed artifacts. One such method is correspondence analysis, a well-known technique used to date and interpret archaeological context. Pottery fragments are among the most commonly encountered artifacts at prehistoric settlement sites, and ceramic seriation is one of the primary tools used by archaeologists to establish chronologies. In our presentation, we demonstrate the application of correspondence analysis to a significant assemblage of pottery remains discovered at Biskupice (Southern Poland), dating by the early Neolithic period, precisely the Linear Pottery Culture (LBK) of the first farming communities in Poland. Radiocarbon dating results confirmed the settlement’s existence towards the end of the 6th millennium BCE . However, the plateau effect is evident, with the majority of dating results falling within a broad range spanning from 5200 to 5000 cal. BCE. The results of correspondence analysis of LBK pottery decoration motifs allowed for a chrono-functional interpretation of a context.

**685. UNRAVELING CERAMIC PRODUCTION, DISTRIBUTION, AND SOCIAL IDENTITY IN NEOLITHIC ALBANIA USING PXRF: A CASE STUDY**

**Contribution format:** Oral  
**Contribution authors:** Hanna Murphy (University at Buffalo (SUNY))

Portable X-ray fluorescence spectrometry (pXRF. is a non-destructive archaeometric method that archaeologists are increasingly incorporating into archaeological research on craft production and exchange. One important class of artifacts that pXRF analyses are beginning to help understand are ceramics. During the Neolithic in the Balkans, ceramic items were a focal point of individual and group lifeways and contribute to our knowledge of prehistoric daily life and symbology. Black-burnished and red-burnished ceramics are frequently associated with Middle Neolithic ceramic assemblages. These ceramic items played a significant role in daily life in food

preparation and serving, and determining how they were manufactured can provide insight into the scale of production and potential inequality in Neolithic villages. In this presentation, we discuss the results of pXRF analyses designed to determine the source and organization of production in the Middle Neolithic of the Korça Plain in Southeast Albania. The Korça Plain is an area with a rich Neolithic history, including two key sites at Luadisht and Podgori. We analyzed ceramic and daub assemblages from these two sites, as well as from surface collections generated through pedestrian survey elsewhere in the Korça Plain. We explore the variability in geochemistry within and between these assemblages to reconstruct the organization of ceramic production during the Middle Neolithic. This case study demonstrates how archaeologists can use pXRF of ceramics to investigate craft specialization, household production, and identity in prehistoric communities.

**113. CERAMIC TRADITIONS AND TRANSITIONS: TECHNOLOGICAL INSIGHTS INTO NEOLITHIC POTTERY FROM WEST LITHUANIA**

**Contribution format:** Oral  
**Contribution authors:** Eglė Štavičė – Adomas Butrimas – Marius Iršėnas (Vilnius Academy of Arts, Institute of Art Research)

The emergence of pottery in the East Baltic region marks the beginning of the Neolithic period, reflecting significant social and cultural transformations. For decades, archaeological cultures have been distinguished primarily by pottery – the shapes and decoration of ceramic vessels. However, recent research has shifted the focus to technological aspects, including ceramic paste recipes, production techniques, and firing practices. Methods such as SEM-EDS, XRF, XRD, and FTIR have been employed to examine the distinctive features of the pottery and develop hypotheses about raw material selection and technological choices. Insights gained through microstructural, geochemical and mineralogical approaches reveal different ways of cultural interaction and knowledge transmission. This presentation examines Neolithic pottery from the Daktariškė 5 settlement in West Lithuania, revealing diverse ceramic paste recipes with tempers ranging from plant materials and shells to crushed granite and grog. It also highlights variations in vessel shapes, coiling techniques, and firing regimes. Notably, this settlement exhibits a remarkable continuity of existence, spanning from the 6th to the 2nd millennium BC and encompassing the entire Neolithic period. These findings shed light on the social and economic transitions within hunter-gatherer-fisher communities (Narva Culture) and their interactions with early farming groups, including those of the Globular Amphora and Corded Ware Cultures. The technological diversity observed within a single settlement underscores processes of knowledge transmission, cultural exchange, and the persistence of ancient traditions amidst shifting landscapes. By analyzing ceramic technological patterns, this study provides new insights into the dynamics of cultural boundaries, the continuity of traditions, and the economic and social transformations of the Neolithic period.

**2091. EXPLORING THE TECHNOLOGICAL FEATURES OF THE INDUS TERRACOTTAS!**

**Contribution format:** Oral  
**Contribution authors:** Sutapa Lahiri (University of Calgary)

The Indus craft industry includes a variety of objects made from different materials. During the Mature phase of the Indus period (2600 to 1900 BCE), there was a remarkable expansion and diversification within the craft sector. This development not only enhanced the economy but also provided significant insights into the identity and culture of the Indus civilization. Among the many crafted products, terracotta objects held particular significance. These artifacts have been an enduring element of the Indus craft tradition, appearing consistently across numerous Indus settlements. Despite their prevalence, research on the specific manufacturing techniques and the processes of knowledge transmission associated with Indus terracotta remains relatively limited. In this presentation, I will demonstrate that these artifacts display a range of technological choices and can be analyzed using non-destructive methods like morphological analysis, applied decorative techniques and XRF analysis on the artifacts. The findings of this study offer compelling evidence of complex and interconnected learning networks among artisans, underscoring the importance of shared knowledge and skills in the crafting process. Furthermore, I will explore the cross-crafting techniques essential in maintaining the Indus cultural identity through terracotta work. This interaction fostered diverse styles and techniques in crafting terracotta objects and contributed to a shared cultural heritage that crossed beyond individual households.

**2221. FUNCTIONS OF BRONZE AGE CERAMIC SCOOPS FROM SW POLAND. PRELIMINARY RESULTS OF USE-WEAR STUDIES**

**Contribution format:** Oral  
**Contribution authors:** Aleksandra Gawron-Szymczyk (Doctoral College of Archaeology, Art and Culture, University of Wrocław)

Archaeological ceramic surfaces often display traces of mechanical or chemical origin, which have not received



much interest until recently. This paper presents the preliminary results of microscopic observations of use-alteration traces found on ceramic scoops (n=23) from three Bronze- and early Iron Age cemeteries and settlement dated between 1100 and 550 BC. A series of experiments was necessary to interpret the microtraces, such as abrasion, scratches, or chemical attritions. The experiments involved grinding and mixing solid substances in experimental vessels. The traces vary depending on the shape of the grains ground in them. The finer and rounder the grains, the more parallel and less chaotic the scratches. The experiments allowed for the interpretation of the traces as being formed during the grinding of perhaps some seeds inside. In the settlement scoops, a solid substance was mixed or crushed, and my experiments showed that it could have been poppy seeds (*Papaver somniferum*) or other seeds of similar size and shape. Not all traces could be interpreted. The traces inside the vessels from cemeteries have a different character, and they were not used for grinding or mixing seeds. My research shows that scoops from different contexts, despite their similarities in shape and size, could have served entirely different functions. Studies are supported by the National Science Centre (NCN), Poland, decision No: 2023/49/N/HS3/00203.

**1496. RETHINKING THE EARLY IBERIAN PERIOD: AN ARCHAEOMETRIC STUDY OF THE EARLIEST WHEEL-MADE IBERIAN CERAMICS FROM CASTELLÓ (SPAIN, 550–500 BCE)**

**Contribution format:** Oral  
**Contribution authors:** Tania Freixas Roig (Grup de Recerca en Arqueologia Protohistòrica (Universitat de Barcelona)) – Clàudia Ortega Palacios (Cultura Material i Arqueometria UB (ARQUB, GRACPE, Universitat de Barcelona) | Institut d’Arqueologia de la Universitat de Barcelona (IAUB)) – David Garcia I Rubert (Grup de Recerca en Arqueologia Protohistòrica (Universitat de Barcelona)) – Jaume Buxeda I Garrigós (Cultura Material i Arqueometria UB (ARQUB, GRACPE, Universitat de Barcelona) | Institut d’Arqueologia de la Universitat de Barcelona (IAUB))

The emergence of the cultural phenomenon known as Iberian Culture in the northeastern Iberian Peninsula has been placed around the mid-6th century BCE. The Early Iberian period, considered the initial phase of this cultural stage, spans from this time until the mid-to-lat. 5th century BCE (c. 550-400 BCE). A key marker of this period has traditionally been the appearance of wheel-made productions in the archaeological record, commonly regarded as local productions directly linked to the rise of Iberian Culture. This phenomenon is particularly evident in the region of Castelló (Valencian Country, Spain). However, given the absence of evidence for ceramic workshops in this context, the possibility arises that these wheel-made ceramics were not local, as traditionally assumed, but rather imported from other regions of the Iberian Peninsula. This scenario calls for a reassessment of what defines the Early Iberian period, including a revision of the sociocultural concepts associated with the emergence of Iberian Culture and the chronology of its formation. To address this issue, this study presents a preliminary archaeometric analysis of 18 sherds from the onset of the Early Iberian period (550-500 BCE), recovered from various sites in Castelló. The analysis includes chemical characterisation through X-ray fluorescence (WD-XRF) and mineralogical characterisation via X-ray diffraction (XRD). A subsample has also been examined at the microstructural level using scanning electron microscopy (SEM). This research is part of a broader project extending to southern Catalonia and the province of Teruel. The results reveal significant heterogeneity in both composition and technology, indicating different products with distinct origins. Furthermore, comparisons with the ARQUB database have identified connections with other sherds recovered in nearby areas, belonging to the immediately preceding period. Moreover, our findings suggest the existence of an extensive trade network, challenging traditional assumptions and underscoring the need for a reassessment of this period.

**1754. THE RISE OF BLACK GLOSS POTTERY IN THE ITALIAN PENINSULA: ARCHAEOMETRIC EVIDENCE FOR ITS PRODUCTION AND DISTRIBUTION**

**Contribution format:** Oral  
**Contribution authors:** Clàudia Ortega Palacios (University of Barceleona) – Marisol Madrid I Fernández (University of Barcelona) – Alejandro G. Sinner (University of Victoria)

As Attic pottery declined in the 4th century, black-gloss pottery emerged and rapidly developed across the Italian Peninsula, becoming a large-scale industry that spread throughout its territory and beyond. These new productions originated in two main areas: the Etruscan region, where high-quality pottery had been produced since the 8th century BC, and in Campania, close to Magna Graecia, where Greek colonists introduced Attic-style pottery into their daily lives as early as the 7th century BC. Potters from these regions transmitted the knowledge and technology needed to produce high-quality black-gloss pottery elsewhere. The success of this new tableware category, combined with the skill of the ceramists, resulted in the manufacturing of similar products in various workshops across Italy. Their uniformity, especially at the macroscopic level, makes it difficult for archaeologists to distinguish their place of origin. Thanks to the archaeometric characterisation through X-ray fluorescence (XRF) and X-ray diffraction (XRD) of 156 ceramic individuals from Populonia and Cosa (Etruria), Gabii (Latium), and Pompeii (Campania), 11 distinct products have been identified, making the traditional classification of Camp A,

B, Boïde, and Cales outdated. These studies allow for the correlation of these products with specific chronologies, certain geographic areas, and their evolution over time, suggesting a shift in production that may be linked to the relocation of economic centres as Rome expanded and grew. The interpretation of this data provides insights into the technology employed by potters during the production process over a period spanning from the late 4th century BC to the early 1st century BC. It also enhanced our understanding of the processes of clay selection, paste preparation, and firing techniques that resulted in a final product so similar in appearance that the naked eye cannot distinguish it.

**1174. PRELIMINARY RESULTS OF THE ARCHAEOMETRIC CHARACTERISATION OF THE IBERIAN POTTERY FROM PUIG CASTELLAR DE BIOSCA (LLEIDA, CATALUNYA)**

**Contribution format:** Oral  
**Contribution authors:** Paula Sánchez (UAB) – Marisol Madrid – Roberta Montesana (Universitat de Barcelona)

During the 2nd century BC, Rome deployed the first military contingents that allowed it to advance its territorial control towards the centre of the Iberian Peninsula and began to build strategic settlements and military garrisons. The construction of these settlements has led the scientific community to consider how they were inhabited, and what their political and economic activity was. This paper will present the preliminary results of the archaeometrical characterisation of 30 fragments of Iberian pottery belonging to a military complex active between 180 BC and 120 BC, Puig Castellar de Biosca, a settlement that controlled part of the territory of the central plane of the north-east of the Iberian Peninsula. Methodologically, the ceramics analysed are individuals of Iberian wheel pottery and coarse pottery (slow wheel and handmade) that have been characterised by different analytical techniques to obtain the most information possible about their origin and production technology. XRF has been used to determine the chemical composition and to carry out provenance studies. Complementary, MO by thin sections has been used for raw materials. To find out the firing temperature and the development of the microstructure during firing, XRD and MER were used. Finally, observations of the material at the macrostructural level have been carried out using the binocular microscope to relate the colour, texture and inclusions of the material to the data obtained by the different analytical techniques. To summarize, the aim of this study is to show the potential of pottery to measure the apparent presence of an important contingent of indigenous people in a nucleus of Italic origin. Secondly, archaeometry will allow us to delve deeper into aspects related to the origins of the locally produced materials used in the settlement, which will inform us about the forms of social and economic relationship between the two contingents.

**2043. ELEMENTAL COMPOSITION OF CERAMIC ASSEMBLAGES FROM THE SANCTUARY OF KALAPODI: A COMPARATIVE STUDY USING PXRF COMBINED WITH CLAYEY RAW MATERIAL**

**Contribution format:** Oral  
**Contribution authors:** Kelly Christodoulou (INN, NCSR Demokritos) – Dimitris Grigoropoulos (DAI, Athens) – Alexandra Von Miller (Institute of Classical Archaeology, Eberhard Karls University Tübingen) – Anno Hein (NCSR Demokritos)

This study offers an elemental analysis of four distinct ceramic assemblages from the sanctuary of Kalapodi, spanning a wide chronological range. These are categorized into two types: coarse and fine ceramic categories dating from Mycenaean to Geometric, as well as Roman period. Additionally, twelve selected clay samples from surrounding regions—East Phokis (Kalapodi, Elateia, Exarchos) and ancient Opous in East Lokris (modern Atalanti)—will be analyzed. The aim is to compare their elemental composition, shedding light on local raw material sources and the organization of pottery production. The fine decorated pottery reveals an interesting trend: East Phokian and Opountian ceramics appear at Kalapodi, suggesting a regional network connecting these areas. While these ceramics seem locally produced, evidence of imports also stands out, illustrating the interaction of local craftsmanship with external influences. This blend highlights a region actively engaged in the exchange of ideas, styles, and materials. As for the coarse ceramics, two main clusters contain Mycenaean and Geometric types, indicating the use of same raw materials from the surrounding region. Interestingly, Mycenaean cooking wares form a distinct cluster, alongside Roman cooking ceramics, suggesting the use of different local clay. This diversity in materials and techniques highlights the potters’ ability to exploit the available raw materials for the production of specific ceramic categories. It also sheds light on the social and political conditions within which these ceramics were produced and distributed during different chronological phases.

**1222. RESISTANCE AND CHANGE DURING COLONISATION: CONTINUED USE OF GROG IN INDIGENOUS POTTERY AT SANTA FE LA VIEJA (1573-1660 CE)**

**Contribution format:** Oral  
**Contribution authors:** Helen Thompson (University of Sheffield) – Jaume Buxeda I Garrigós (Cultura Material i Arqueometria UB (ARQUB, GRACPE), Universitat de Barcelona) – Peter Day (Institute of



Nanoscience and Nanotechnology, NCSR “Demokritos”) – Caroline Jackson (University of Sheffield) – Gabriel Cocco – Leticia Campagnolo (Museo Etnográfico y Colonial “Juan de Garay”)

Santa Fe la Vieja was established by Spanish conquistador Juan de Garay in 1573 on Indigenous land in the Rio de la Plata basin, Argentina. Indigenous settlements inhabited the region for at least 1500 years before the arrival of the Spanish and had a rich tradition of pottery production known as Goya-Malabrigo. During the colonial period, Indigenous people continued to produce pots for Spanish consumption, taking on aspects of Spanish forms, known as Hispanic-Indigenous pottery. Finally, during colonisation, the Spanish re-located Guarani people, an Indigenous group from the north, who also had distinct pottery traditions. This project undertakes a comparative study of Goya-Malabrigo, Guarani, and Hispanic-Indigenous pottery to understand the continuity and change of cultural practices over time, the transmission of craft knowledge, and social transformations as seen in pottery production. The samples were studied primarily by thin-section petrography with supplemental analytical insights from chemical analysis by XRF to determine provenance and technology. The results demonstrate an extensive tradition of the use of grog temper from before the arrival of the Spanish, extending through the colonial period, which indicates a transmission of craft technology to the Guarani people. The continued use of grog temper in Indigenous ceramics at Santa Fe la Vieja suggests the retention of key traditions and a subtle cultural resistance in the face of Spanish colonisation.

**1131. TRACING TECHNOLOGICAL TRADITIONS AND KNOWLEDGE TRANSMISSION IN THE HIGHLANDS OF NARIÑO AND CARCHI: A MULTI-ANALYTICAL APPROACH TO CERAMIC PRODUCTION**

**Contribution format:** Oral  
**Contribution authors:** Catherine Klesner (McDonald Institute for Archaeological Research, University of Cambridge) – Lina María Campos-Quintero (Museo del Oro, Banco de la República) – Felipe Cárdenas Arroyo (Peabody Museum of Archaeology and Ethnology, Harvard University) – Rosie Crawford (McDonald Institute for Archaeological Research, University of Cambridge) – María Camil. Maya Cabrera (Instituto Colombiano de Antropología e Historia (ICANH)) – David Alejandro Pérez Fernández (Sacyr Concesiones Colombia | Universidad del Cauca) – Juanita Sáenz-Samper – María Alicia Uribe-Villegas (Museo del Oro, Banco de la República) – Jasmine Vieri (McDonald Institute for Archaeological Research, University of Cambridge) – Marcos Martínón-Torres (McDonald Institute for Archaeological Research, University of Cambridge | Department of Archaeology, University of Cambridge)

In the highland region of Nariño (Colombia) and Carchi (Ecuador), three overlapping pottery styles, Tuza, Piartal and Capulí, were produced in the pre-Hispanic period. While these wares have been recovered and discussed frequently in past literature, their context (recovered mostly from burials) and lack of prior technical studies has prevented any conclusive inferences about their technology, craft organisation, or diachronic evolution. Through a comparative analysis of the chaînes opératoires of three decorated wares using geometric morphometrics, bulk chemistry, microscopy, and microanalysis on a large sample from multiple sites, we are beginning to disentangle these ceramic traditions and identify key technological traits which inform about the connections between the makers of these different styles. Capulí and Piartal ceramics exhibit shared decorative techniques and production processes, reflecting the direct transmission of technological knowledge between potters and underscoring dynamic networks of craft interaction. The continuity in vessel morphology and clay selection between Piartal and Tuza ceramics suggests sustained technological traditions, while the adoption of new decorative techniques in Tuza pottery are strongly indicative of exogenous influences. Pioneering analyses of intra-vessel shape variation allow us to identify different skills and idiosyncratic artisanal traits, contributing to our understanding of craft organization, learning, and the production of funerary assemblages. This study presents an integrated analytical model for examining decorated ceramic traditions, demonstrating how technological choices, craft organisation, and knowledge transmission contribute to our broader understanding of socio-cultural transformations in pre-Hispanic communities.

**1410. IN GROG WE TRUST. ETHNOARCHAEOMETRY OF CERAMIC MATERIAL FROM THE REGION OF OLD DONGOLA (SUDAN)**

**Contribution format:** Oral  
**Contribution authors:** Boguslaw Franczyk (Faculty of Archaeology, University of Warsaw)

The ethnoarchaeometric approach involves using archaeometric methods to analyze ceramic materials obtained from excavations, as well as ceramics from contemporary local pottery workshops. This presentation will focus on a detailed analysis of non-plastic inclusions visible in the fabric, particularly grog and rock grains. The main goal is therefore to gain a better understanding of the pottery techniques used in the Old Dongola region

by addressing the following research questions, which fall into two main topics. The first topic examines the phenomenon of mineral temper in the form of talc-chlorite schist grains. Key questions include: How did the steatite admixture vary, and can its origin be traced to one or more outcrops of this rock? Does the use of this temper in kitchen vessels indicate that potters had specific knowledge of its physicochemical properties? Should we consider knowledge exchange, the trade of entire vessels, or focusing solely on the mineral temper? The second topic pertains to the relatively diverse grog that must have been accessible to potters. Questions in this area include: What was the availability of grog near the pottery workshop? Can we identify the presence of grog from earlier Makurian ceramic vessels? Was there intention behind the selection of grog? Is the contemporary morphology of grog similar to that of grog found in the vessels rom the past? Lastly, can we infer past techniques by observing the grog processing methods used today?

**353. RESEARCH INTO THE 11TH-CENTURY CERAMIC FINDINGS OF THE ELITE RESIDENCE OF THE VISEGRÁD-SIBRIK-DOMB SITE**

**Contribution format:** Oral  
**Contribution authors:** Dóra Csepregi Horváth (Pázmány Péter Catholic University)

Ceramics are the main source of information for researching the 11th-century sites in Hungary. The examination of this period’s ceramic presents a challenge in many aspects. In this period, trade in vessels was not yet typical, so they must be examined region by region. As a result, the vessels show regional differences and are characterized by the uniqueness and high variability of their forms and decorations. The early castle of Visegrád-Sibrik-bomb site, which is located in the northern part of Hungary and flourished in the 11th century, offers a great opportunity to examine the ceramics from this period. This power centre was built on the remains of a Roman fortress and was inhabited from the 8th-9th century until the 11th century. It lost its significance in the 12th century. Furthermore, the settlement of the Visegrád-Várkert site was located around it and had a strong relationship with the centre. The examination of one of the castle’s large elite buildings may shed light on several research questions related to ceramics and ceramic technology. Firstly, a comparison of the ceramics from the earlier periods and of the 11th century found at the site may reflect on whether there was a technological inheritance from the 9th to the 11th century. The comparison of the ceramics from the Visegrád-Sibrik-domb site and from the surrounding settlement, as well as the ceramics from other contemporary sites in the region, may highlight the differences in the ceramic materials of the elite sites and the settlements located farther from the centres.

**1479. A MULTI-ANALYTICAL STUDY ON ARCHAEOLOGIC CERAMIC MATERIALS FROM THE EXCAVATION AT VASALAKIS PLOT, GROTTA NAXOS (GREECE)- PRELIMINARY DATA**

**Contribution format:** Poster  
**Contribution authors:** Anna Tsoupra (HERCULES Laboratory, University of Évora | In2Past) – Pedro Barrulas (HERCULES Laboratory, University of Évora | In2Past | Department of Chemistry, School of Science and Technology, University of Évora) – Eleni Nodarou (Institute of Aegean Prehistory-Study Center for East Crete (INSTAP-SCEC)) – Irini Legaki – Anastasia Aggelopoulou (Ephorate of Antiquities of Cyclades, Hellenic Ministry of Culture) – Patrícia Moita – José Mirão (HERCULES Laboratory, University of Évora | In2Past | Department of Geosciences, School of Science and Technology, University of Évora)

The archaeological site of Grotta, located directly beneath and adjacent to the main square of Chora in Naxos, exhibits a continuous history of occupation from antiquity to the present day. A recent rescue excavation was conducted in a private plot, situated at the westernmost end of Grotta in close proximity to the sea. This excavation uncovered significant archaeological remains, including ceramic artifacts and earthen structures. This study presents preliminary analytical results concerning archaeological ceramics dated to end of the Neolithic period and the beginning of the Early Bronze Age (end of 4th -beginning of 3rd millennium B.C.) as well as to the Late Bronze Age (2nd millennium B.C.). A multi-analytical methodology was employed, incorporating X-ray diffraction (XRD), X-ray fluorescence (XRF), petrography, and Variable Pressure Scanning Electron Microscopy with energy-dispersive spectroscopy (VP-SEM-EDS). The objective of this research is to characterize the ceramic materials, determine the composition of the raw materials utilized in their production, and investigate the technological processes involved in their manufacture. As part of the project “MATCH: contextualizing ceramic raw MATerials exploitation and pottery distribution, a transdisciplinary approaCH”, this research aims to contribute to broader discussions on ceramic production technologies, distribution networks, and exchange systems in the Cyclades during the Neolithic and the Bronze Age.



2491. CERAMIC TECHNOLOGIES AND SOCIAL DYNAMICS IN THE IRON AGE NECROPOLIS OF CASTELLONS AND SEBES (FLIX, CATALONIA)

**Contribution format:** Poster  
**Contribution authors:** Judith Peix Visiedo (ICAC-Catalan Institute of Classical Archaeology) – David Jimeno Jiménez (GRACPE- Research Group on Archaeology of Complex Societies and Processes of Social Change | University of Barcelona) – Maria Carme Belarte (ICAC-Catalan Institute of Classical Archaeology | ICREA-Catalan Institution for Research and Advanced Studies) – Jaume Noguera Guillén (GRACPE- Research Group on Archaeology of Complex Societies and Processes of Social Change | University of Barcelona)

This study investigates the technological and cultural practices underlying a set of cinerary ceramic urns from the Castellons and Sebes necropolis (Flix, Catalonia), dated to the Early Iron Age (6th–5th centuries BC). Both sites have been fully excavated by the GRACPE and ICAC research teams. The urns exhibit two distinct production techniques: wheel-made and hand-built. Preliminary hypotheses suggest that the wheel-made ceramics may reflect Phoenician influence, while the hand-built pieces likely indicate local production traditions. The notable predominance of hand-built urns over the limited presence of wheel-made examples offers insights into social differentiation and stratification within these communities. Using analytical methods, including X-ray fluorescence (XRF) and X-ray diffraction (XRD), we aim to determine the provenance of these ceramics and assess their cultural implications. The results will be compared with the ARQUB (GRACPE, UB) database to assign the ceramics to defined reference groups, allowing us to distinguish locally produced pottery from imports. Additionally, XRD analyses will provide insights into technical production aspects, such as equivalent firing temperatures (EFT), helping to discern different manufacturing techniques employed for vessels with similar functions. These analyses form part of a broader interdisciplinary study on necropolises in the northeastern Iberian Peninsula. By integrating archaeometric analyses with the archaeological context, this research enhances our understanding of ceramic technology transmission and its implications for cultural interaction, social organization, and identity during a period of significant social transformation.

274 GENERAL SESSION

**Session theme:** —  
**Session format:** Regular session  
**Session keywords:** Archaeology, Heritage, Research, Methods, Innovation, Interdisciplinary  
**Session chair:** Selena Vitezovic (Institute of Archaeology, Belgrade | Belgrade Scientific Committee, European Association of Archeologists)

SESSION ABSTRACT

This session is organised by the EAA rather than external session organisers and is chaired by a selected EAA Member, representing the Belgrade Scientific Committee. The session does not focus on a specific theme but instead brings together contributions on a variety of topics, providing authors with the opportunity to share their research with a broad audience.

CONTRIBUTION ABSTRACTS

911. AURIGNACIAN SENSU LATO – OR NOT? THE TECHNO-TYPEOLOGICAL IDENTITY OF THE FIRST UPPER PALAEOLITHIC INDUSTRY IN THE IBERIAN MEDITERRANEAN BASIN

**Contribution format:** Oral  
**Contribution authors:** Álvaro Martínez-Alfaro – Aleix Eixea – Valentín Villaverde (Universitat de València)

Initially identified by E. Lartet in the mid-19th century, the Aurignacian industry was regarded as the first phase of the Upper Palaeolithic by H. Breuil in the early 20th century. Since then, the sequences in south-west France have provided the reference framework for organising the technocomplex into distinct phases and for the industrial characterisation of each. However, debate continues over the suitability of the Aquitaine sequence as a benchmark for defining and understanding archaeological sites beyond south-western France. Rather than delineating distinct regional characteristics through critical assessment, most studies of the industries developed during the Aurignacian period have focused on extending the French model. Nevertheless, an increasing body of research is revealing considerable technological variability, thereby challenging the straightforward application of the Aquitaine model. One should avoid imposing a parallel with the high-resolution sequence of Aquitaine, since its identity must reflect regional contexts that are not necessarily replicated elsewhere. Instead, research should focus on identifying any distinguishing industrial characteristics and on assessing the extent to which these correlate

with the broadly accepted industrial definition of the assemblages ascribed to the technocomplex. In the central Iberian Mediterranean region, the earliest Upper Palaeolithic industry has been categorised under the umbrella term Aurignacian. In this communication, we offer a critical evaluation of the lithic industries associated with the Evolved and Late Aurignacian phases. Our analysis of the assemblages reveals a shared substrate with the industrial traits typical of Aquitaine, as indicated by the occurrence of Dufour Roc-de-Combe and Caminade bladelets. However, there are also technological differences, such as the minimal role of knapping on burin-cores and the predominance of exploitation on carinated cores of the end-scraper type. Drawing on lithic techno-typology, we assess whether adopting new designations would be preferable or whether the continued use of the term “Aurignacian” is justified.

1139. FRACTURE WING ANALYSIS IN FLINT FOR IDENTIFICATION BETWEEN BLADE LITHIC REDUCTION TECHNIQUES. IS THE TRANSITION FROM OBSIDIAN TO FLINT POSSIBLE?

**Contribution format:** Oral  
**Contribution authors:** Marcos Barba Pérez (Departament de Prehistòria. Universitat Autònoma de Barcelona) – Javier Fernández González (Departament de Ciència de Materials i Química Física. Universitat de Barcelona.) – Juan Antonio Marin De Espinosa Sanchez (Sílex. Arqueología y Difusión del Patrimonio S.L.)

Fracture wings have been widely studied and have been shown to be visible microscopic marks on the fracture surfaces of glass-ceramic materials. These marks are usually V-shaped with their apex pointing towards the direction of fracture propagation and usually originate from an impurity in the material. Since the formation of fracture wings, triggered by the passage of a fracture wave, is largely determined by the crack velocity and the substance of the material, their identification directly contributes to a better understanding of lithic reduction technology. Their study is particularly relevant to extract data such as crack velocity m/s, which can vary according to different forms of blade reduction such as: direct percussion, indirect percussion and pressure. Studies carried out by other researchers demonstrated a strong association between cracking velocity and lithic reduction techniques, contributing to the understanding of lithic technology and production practices of different cultures and periods. The purpose of this work is to present the identification of fracture wings in a little-explored material such as flint. Through a multiscale microscopic analysis with different microscopy techniques in the study of an experimental protocol with controlled variables that includes the production and study of various techniques of lithic reduction of blades produced by a researcher and expert flintknapper, giving rise to a comparative study between 3 materials: obsidian, a material widely studied previously by other researchers on which this analysis methodology is based, and flint, studied in this protocol in 2 different flint variants. This study could expand the theoretical framework of wing fractures and their identification in other materials, allowing to extend the analysis of flake techniques by studying a series of experiments that could be applicable to archaeological records with similar productions, such as Mesolithic or Neolithic blade reduction contexts.

1807. FROM EXPERIMENT TO INTERPRETATION: ADVANCING OCHRE RESIDUE ANALYSIS ON LITHICS FROM BLOMBOS CAVE

**Contribution format:** Oral  
**Contribution authors:** Jasmin Culey – Elizabeth Velliky (University of Bergen) – Karen Van Niekerk (University of Bergen, University of the Witwatersrand) – Francesco D’Errico (Université Bordeaux, University of Bergen)

The exploitation of ochre in Africa is widely regarded as a key behavioural feature for understanding the cultural evolution of Middle Stone Age populations. Blombos Cave, South Africa, boasts a large ochre assemblage of over 8,000 pieces, found in layers dated to between 110,000 and 70,000 years ago. Alongside this assemblage, numerous lithic artefacts bearing ochre residues are distributed throughout the entire sequence. While ochre has been associated with both symbolic and functional applications, the distinction between anthropogenic applications and natural alterations as well as processes behind the formation, transformation, and preservation of these residues has yet to be systematically explored. To begin addressing these gaps, this study experimentally replicated ochre residue deposition on lithics and how these residues transform taphonomically. Ochre was applied in powder and compound forms using different methods, and the artefacts were subjected to controlled experiments simulating post-depositional processes over time. The next phase of this research focuses on applying criteria derived from the experimental collection to document and interpret ochre residues on archaeological lithics from Blombos Cave dated to around 110,000-90,000 years ago. By integrating experimental archaeology with residue analysis, this study aims to provide new insights into the relationship between ochre and lithic technology in the Middle Stone Age. This approach contributes to broader interpretations of environmental adaptations, technological choices, and potential symbolic behaviours at Blombos Cave and beyond.



879. FROM RECORDING TO INTERPRETATION: PLACES WITH SEGMENTED CIRCLES IN THE IBERIAN NORTHWEST, ANALYSED THROUGH THE NEW METHODOLOGICAL APPROACHES

**Contribution format:** Oral  
**Contribution authors:** Diogo Marinho (Fundação para a Ciência e Tecnologia (FCT). University of Minho (Lab2PT/IN2PAST)) – Ana Bettencourt (Lab2PT/IN2PAST and History Department, University of Minho) – César González-García (Institute of Heritage Sciences, Spanish National Research Council (INCIPIT, CSIC))

The study of rock art has seen significant advances, driven by the development of digital tools that enable more detailed analyses and innovative methodologies. This research focuses on the segmented circle, a geometric motif that, although not particularly frequent, appears in various archaeological contexts. Previous studies (Bettencourt, 2017, 2019, 2023; Marinho, 2020, 2022, 2023) have extensively analysed this engraved motif in Northwestern Portugal, employing methodologies grounded in Contextual and Interpretative Archaeology. These included the description of engraved surfaces, the analysis of motif orientation, and the use of digital tools such as photogrammetry and Geographic Information Systems (GIS). Spatial Archaeology methods, including Visibility Analysis and Site Catchment Analysis, were also applied. The findings indicate that segmented circles date to the Bronze Age and are associated with contemporary settlements. Their orientation suggests a correlation with the winter and summer solstices, raising the hypothesis of solar symbolism. Furthermore, an Atlantic origin is considered, with potential connections to the Norse-inspired mythology of the solar horse/boat, given the presence of similar engravings in northern regions. The research is now expanding to the Northwestern Iberian Peninsula, incorporating advanced Archaeoastronomy methodologies to further investigate the relationship between these motifs and celestial phenomena. The use of clinometers will enable more precise measurements, while software such as Stellarium, Horizon, and PeakFinder will assist in validating astronomical correlations and reconstructing the night sky in different chronological periods. GIS will continue to play a central role, now applied to the analysis of land use and the identification of areas with archaeological potential for future excavations. Photogrammetry will remain essential for the documentation and analysis of engravings. This multidisciplinary approach will significantly enhance the study of rock art in Northwestern Iberia.

305. HOW ROCK ART IS SEEING? VISUAL ATTENTION PATTERNS UNDERLYING THE OBSERVATION OF PREHISTORIC DEPICTIONS

**Contribution format:** Oral  
**Contribution authors:** María Silva Gago (Instituto de Ciencias del Patrimonio (INCIPIT), CSIC) – Marcos García-Díez (Universidad Complutense de Madrid) – Manuel Santos-Estevéz (Instituto de Ciencias del Patrimonio (INCIPIT), CSIC) – Emiliano Bruner (Museo Nacional de Ciencias Naturales (MNCN), CSIC) – Luis Martínez (Instituto de Neurociencias, CSIC) – Felipe Criado-Boado (Instituto de Ciencias del Patrimonio (INCIPIT), CSIC)

From a cognitive point of view, the observation of visual art can provide valuable insights into the mechanisms of human vision and perception, as viewing art is a complex process involving perception, attention and decision-making, among other cognitive and affective capacities. Prehistoric art is a structured graphic language, designed to be perceived and interpreted by members of the original human group, with the potential for lasting impact beyond the moment of creation. However, the first process of art perception involves visual exploration through rapid eye movements, known as saccades, which occur between small pauses called fixations. This fixation-saccade system provides information about patterns of attention and information processing and can be analysed using eye-tracking technology. Although some studies have analysed the visibility and position of representations from multiple approaches, the distribution of attention within a representation has not been analysed in a large number of sites. We propose the application of eye-tracking technology to investigate visual perception during the observation of prehistoric rock art. We have developed several experimental studies involving Palaeolithic paintings and post-Palaeolithic engravings in different geographical and cultural contexts to avoid WEIRD (Western, Educated, Industrialized, Rich and Democratic) biases. Our results suggest that attention was directed primarily to the figures, and specifically to the head, rather than to other surface features. In addition, incomplete figures were observed as if they were fully depicted. We suggest that representation generally indicates how to be observed independently of cultural context, directing attention primarily by semantic processing or figure identification aided by Gestalt principles and other top-down mechanisms.

2106. TRACES OF METALLURGY: A COMPARATIVE STUDY OF ITS IMPACT ON ANIMALS IN THE PAST OF NORTH-EASTERN SERBIA

**Contribution format:** Oral  
**Contribution authors:** Danica Grujić (Institute of Archaeology in Belgrade) – Mirjana Čujić (Vinča Institute of Nuclear Sciences)

Human and animal bones found at archaeological sites serve as a unique bio-archive, preserving vital information about the organisms themselves, such as lifestyle, diet, health status, and living conditions of past populations. In addition to this, bones can also retain information about the environment in which people and animals lived. One crucial piece of information that bones can reveal is the level of environmental pollution caused by metallurgical activities conducted by people in the past. As these activities release heavy metals into the environment, studies have shown that prolonged exposure to these pollutants can lead to the accumulation of heavy metal particles in various parts of living organisms, including bones and teeth. Previous studies of this kind have predominantly focused on human remains, while research on archaeozoological material remains scarce. Addressing this gap, the TraceMet project, funded by the Serbia Accelerating Innovation and Growth Entrepreneurship (SAIGE) initiative, has focused on analyzing archaeozoological material. The analysis was conducted on the bones of domestic animals from several archaeological sites in northeastern Serbia. The analyzed material spanned various periods, from the Late Neolithic, through the Bronze Age, Iron Age, Roman period, and the Middle Ages. The analysis was performed using Inductively Coupled Plasma Mass Spectrometry (ICP-MS) in collaboration with the Vinča Institute of Nuclear Sciences. The TraceMet project is pioneering in nature and aimed to compare the obtained results both among different sites and chronologically.

499. THE END OF THE EGYPTIAN NEW KINGDOM IN COLONIAL NUBIA: NEW PERSPECTIVES ON CULTURAL AND SOCIETAL TRANSFORMATIONS

**Contribution format:** Oral  
**Contribution authors:** Julia Budka (LMU Munich)

The Bronze Age collapse concerns in Egypt the so-called 20th Dynasty, the late Ramesside period. While the wars and campaigns of the Ramesside kings (especially of Ramesses III) against the Libyans and Sea Peoples are usually referred to as the main events, this lecture aims to change the perspective. From the beginning of the New Kingdom, an Egyptian colony was established south of Egypt in Nubia (modern Sudan), which was administered mainly thanks to foundations of new temple towns which functioned as administrative, religious and economic centres. Complex and dynamic developments regarding the population can be observed over the time of the 18th Dynasty, whereby cultural entanglements between Egyptians and Nubians were an essential feature, transforming identities and established social structures. Using a bottom-up approach from the perspective of colonial Nubia, this lecture addresses the question of whether and if so which social and economic changes can be recognised from 1200 BCE onwards. The focus will be on developments in the urban administrative centres, but also in rural areas, taking Sai Island, Amara West and the Attab to Ferka region as the main case studies in the Middle Nile. In a joint analysis of archaeological finds, material culture, textual evidence and historical data, aspects of transformation and resilience in the late New Kingdom in Nubia are discussed, which are also highly relevant for the subsequent epoch, the so-called Pre-Napatan era in Nubia and the Libyan Period in Egypt.

355. THE KEEPERS OF THE ASH: OSTOTHEKAI FROM THE MIDDLE STRYMON VALLEY, ROMAN PROVINCE OF MACEDONIA

**Contribution format:** Oral  
**Contribution authors:** Philip Kolev (National Archaeological Institute with Museum, Bulgarian Academy of Science)

The Middle Strymon Valley is located in southwest Bulgaria. The region is a clearly defined geographical area surrounded by high and medium mountains. This geographical feature has contributed to the development of a distinct cultural identity and a relatively autonomous historical development. A distinctive feature of the region is the presence of numerous funerary monuments, among which the ostothekai are particularly prominent. The ostothekai are marble urns in which the ashes of the deceased were stored following cremation. These monuments bear a striking resemblance to sarcophagi in terms of function. The provenance of these monuments is located in Asia Minor, where their production first emerged during the Hellenistic period under the influence of local sarcophagus craftsmen. The total number of specimens from Middle Strymon Valley that are known to exist either in an intact state or as fragments is 26. The ostothekai are of two types: rectangular and circular. Both types are adorned with garlands, which are supported by Erotes, ram-heads or ox-heads, portraits and standing figures. It is hypothesised that the monuments from Middle Strymon Valley are of local provenance, being the product of artisans hailing from Asia Minor. The earliest monuments were dated from the second quarter of the 2nd century to the end of the first quarter of the 3rd century AD.

2064. BENEVENTUM – NUCERIOLA: A COMPLEX SYMBIOSIS ALONG THE VIA APPIA

**Contribution format:** Oral  
**Contribution authors:** Daniela Musmeci (University of Salerno)

The colony of Beneventum (Benevento, Campania, Italy) and its southeastern territory offer a significant example



of the symbiotic complementary relationship between “urban” and “rural” settlements in the Roman period. The Ancient Appia Landscapes project, carried out by the University of Salerno - playing a key role in the recognition of the Via Appia as a UNESCO World Heritage site - has been investigating this area since 2011. The project has built a comprehensive dataset through archaeological excavations, geophysical prospections, aerial photo-interpretation, historical cartographic analysis and archaeo-morphological surveys. Approximately 6 km from Beneventum, a significant settlement has been identified in Masseria Grasso, with an occupational span from the 4th century BC to the 6th century AD. This site has been identified as Nuceriola, mentioned in the Tabula Peutingeriana at the IV mile along the Via Appia. The site fulfilled multiple functions - administrative, economic, and religious - making it a focal point within the settlement dynamics of the region over the centuries. Before the Roman period, the settlement was already structured, but it flourished later, becoming an economic hub and a landmark within the centurial system, especially since the Triumviral-Augustan colony (42-1 BC). As a projection of the city into the territory, Nuceriola also served as a link between the urban centre and the countryside, where a network of smaller settlements (villae, farms, necropolis) has been identified up to Ponte Rotto on the Calor flumen (modern Calore river), also mentioned in the Tabula Peutingeriana. This paper aims to provide an updated analysis of the distribution of rural settlements and their relationship with the city, enhanced by the connecting role of the Via Appia. The objective is to move beyond the traditional dichotomy between “urban” and “rural” by highlighting how these spaces were interdependent and part of a network of development.

1777. EARLY IMPERIAL COINS IN THE PROVINCES OF LOWER MOESIA AND THRACE

**Contribution format:** Oral  
**Contribution authors:** Renata Ciolek (University of Warsaw Faculty of Archeology)

This paper explores the circulation of early imperial coins in the provinces of Lower Moesia and Thrace, focusing on numismatic finds from archaeological contexts, particularly those recovered from legionary camps. The study is based on an original catalog of coin finds, including both commonly circulating types and unique specimens, such as countermarked coins. By analyzing these materials, the research aims to reconstruct the patterns of coin distribution in these two Danubian provinces during the reign of the Julio-Claudian dynasty. A crucial aspect of the study is the comparison between the circulation of coins within military settlements and their presence in civilian contexts. The role of local mints, particularly in supplying monetary demand in frontier regions, will be examined. Additionally, the presence of coins from different mints across the empire will be considered in relation to the mobility of troops, economic activities, and administrative structures in the region. The study will also address the significance of countermarked coins as evidence of monetary control and revaluation practices. This research provides new insights into the monetary economy of Lower Moesia and Thrace in the early imperial period, contributing to a broader understanding of coin circulation in provincial and frontier economies of the Roman Empire.

713. COUNTRY AND CITY IN THE NORWEST OF THE IBERIAN PENINSULA

**Contribution format:** Oral  
**Contribution authors:** Francisco Folgueira Rios (University of Santiago de Compostela) – Diego Machado (Universidade do Minho)

The northwest of the Iberian Peninsula during Roman rule is characterized by low urbanization, which was traditionally interpreted as a clear reflection of the supposed little impact that the Roman Empire would have in this region. Thus, the Northwest tended to be seen as a territory marked by a strong continuity of social and economic practices, where the cities founded by Rome after the conquest, which took place after the end of the Cantabrian Wars in 19 BC, would be perceived by researchers as small Roman redoubts in an indigenous rural world, which would remain unchanged until at least the Late Antiquity and the arrival of Christianity. But this view can only be sustained if we understand the city and the countryside as two completely opposite concepts, which have no relationship to each other. This study aims to align with the latest research on the Iberian Northwest, which seeks to break away from the traditional paradigm. In doing so, it views the three capitals of the Roman conventus as part of a broader network that supported the administration, management, and exploitation of the territory. In this way, we will analyse the three convent capitals and the different settlements connected to them through the wide network of roads that were built, despite the supposed slight urbanization that suffered this territory. We believe this conceptual change on “urban” and “rural” can provide a new perspective and accordingly analyse the territory and the population that inhabited, produced and lived in it since the 1st century BC until the 5th century AD.

83. POINTED CROSS VAULTS AND LIGHT: THE GOTHIC CHURCH OF SAN LORENZO IN VICENZA (13TH CENTURY)

**Contribution format:** Oral  
**Contribution authors:** Angelo Passuello (Marie Skłodowska-Curie Postdoctoral Fellow - Archaeological Research Unit of the University of Cyprus)

In Gothic architecture, light holds a profound symbolic and spiritual significance, closely aligned with Neoplatonic thought. It is perceived as a medium that reflects divine presence, elevating the soul of the faithful toward God. The roofing systems employed in the Gothic cathedrals of Northern Europe – characterized by cross vaults and pointed arches – enable the construction of lighter walls, allowing for the inclusion of large windows that let in abundant natural light. This paper, developed as part of the CaMeRoofs project, funded by the EU under the Marie Skłodowska-Curie Actions (101104788), explores the architectural history of the Franciscan church of San Lorenzo in Vicenza (Veneto Region, Northeastern Italy), whose construction began in 1281. The study focuses on the relationship between the church’s light sources and its roofing systems. San Lorenzo, designed following a Cistercian layout, combines pointed arches and cross vaults systematically, enabling the inclusion of sizable windows that enhance natural lighting. The light is not concentrated in a single focal point but is evenly distributed through the rhythmic arrangement of ogival and round windows, partially diverging from the traditional sobriety of Italian Gothic churches. In such churches, windows tend to be smaller and often replaced by frescoed wall surfaces. In San Lorenzo, however, there is a notable openness to natural light, with windows that, while not as grand as those in French Gothic cathedrals, achieve a richer and more balanced illumination, avoiding the dazzling effect typical of Northern Gothic styles. San Lorenzo’s innovative design proved influential, particularly among the Dominican friars, who occasionally supplanted the Franciscans in advancing Gothic architecture in the Veneto. Between the 13th and 14th centuries, churches such as Sant’Agostino in Padua, Santa Anastasia in Verona, and San Nicolò in Treviso drew inspiration from San Lorenzo, engaging in a creative dialogue with French Gothic models.

253. CONSTRUCTING BRITTANY: THE 19TH-CENTURY INVENTION OF THE BRETON NATION AND MODERN REASSESSMENTS

**Contribution format:** Oral  
**Contribution authors:** Gerard Matser (UMR 6566 CReAAH Rennes 2)

The prevailing notion that Brittany remained independent until the marriage of Anne of Brittany to King Charles VIII of France is a widely accepted response among Bretons when discussing the region’s loss of autonomy. This argument has been reiterated and adapted across various historical narratives, depending on the author and contextual considerations. The origins of this perspective can be traced back to the 19th century when Arthur de la Borderie translated medieval texts related to Brittany, such as the Chronicles of Nantes into french. These translations framed the historical interactions between the Breton people and the Franks within a contemporary nationalist discourse, leading to the conceptualization of a distinct Breton “nation” emerging in the early Middle Ages. However, modern scholarship has introduced significant nuances to this interpretation. Recent archaeological and historical research suggests that previous studies have been influenced by nationalist ideologies that sought to depict Brittany as a long-standing defender of its independence. These ideological biases have shaped historical narratives, often at the expense of a more objective analysis. This paper will critically examine the various conceptions of the so-called “Breton Kingdom” as proposed in the 19th and 20th centuries. It will explore the origins and motivations behind these interpretations and assess their historiographical impact. Lastly, this study will present an alternative perspective, arguing that Brittany may never have been an independent nation in the conventional sense—nor even distinctly “Breton” in the way it has been traditionally conceived. These claims will be supported by recent archaeological findings and newly emerging historical analyses.

1177. IDENTITY AND LIVED SPACES IN TĀNO’ LĀGUAS YAN GĀNI (MARIANA ISLANDS, MICRONESIA): FROM LATTE TO COLONIAL PERIOD (10TH-18TH CENTURIES)

**Contribution format:** Oral  
**Contribution authors:** Luis Berrocal-Maya (Universitat Pompeu Fabra)

Tāno’ Lāguas yan Gāni (Mariana Islands) is an archipelago located in the north-west of the Pacific Ocean. The Inhabitants of the islands, called CHamoru, reached the region c. 1500 b.C. In the 10th century, It is observed the emergence of domestic architecture marked by the use of megalithic pillars, known as Latte. The characterization of these structures seems to indicate the predominance of a relational, community identity. However, from the 16th century onwards, the contacts with Spanish colonialism and, especially, with the Jesuits (17th-18th centuries), forced the abandonment of these buildings. This coercive process unleashed the so-called “Guerras Hispano-Chamorras”. Through them, the Catholic religion was established as a key identity element. Moreover, the situation was consolidated with the imposition of “reductions”. This type of urban settlement transformed the



living spaces in which the CHamoru carried out their daily lives through the modification of domestic, worship and necropolis spaces. Likewise, this dynamic led to the relocation of indigenous populations in delimited areas of Guåhån (Guam, Mariana Islands), therefore changing their relationship with the environment and nature. The result was the imposition of a new identity marked by the values of Western modernity, such as individual-ity and rationality.

1918. BLUE SHIELD AS AN INSTRUMENT FOR CULTURAL HERITAGE PROTECTION: IMPLEMENTING THE 1954 HAGUE CONVENTION IN CONTEMPORARY CONFLICTS

Contribution format: Oral  
Contribution authors: Carl L. Thunberg (Västernorrland’s Museum)

As armed conflicts continue to endanger cultural heritage worldwide, the urgency of effective protective mechanisms has never been greater. The 1954 Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict remains the cornerstone of international efforts to safeguard cultural property, yet its practical implementation relies on proactive actors who bridge the gap between legal frameworks and real-world challenges. This article examines Blue Shield’s role as a key implementer of the Hague Convention, analyzing how it translates legal obligations into actionable strategies for cultural property protection. Founded on principles of neutrality and independence, Blue Shield operates at the intersection of cultural preservation, humanitarian action, and security policy. Through case studies of conflicts where cultural heritage has been threatened or destroyed, this study explores how Blue Shield, in collaboration with international actors, has contributed to risk assessment, emergency response, and capacity-building. At the same time, it critically examines constraints that limit its effectiveness, including political resistance, security threats, funding shortages, and the increasing complexity of modern warfare. The deliberate destruction of cultural heritage is increasingly used as a weapon of ideological, ethnic, and religious persecution, raising critical questions about its link to cultural genocide. In this context, Blue Shield’s work extends beyond site protection to preserving the material traces of cultural identity, which are often targeted during conflicts. By analyzing Blue Shield’s evolving strategies and broader significance, this article argues that the organization not only reinforces the Hague Convention’s implementation but also helps shape the future of heritage protection in conflict zones. In an era where heritage destruction is both a tactical and symbolic act, Blue Shield’s efforts highlight the urgent need for stronger international cooperation, more adaptive legal mechanisms, and renewed commitments from states, institutions, and civil society to safeguarding humanity’s shared past.

63. PROJECT CIRCE. APPROACHING ECONOMIC CIRCULARITY IN ANTIQUITY WITH A LONGUE DURÉE AND MULTI-SITE PERSPECTIVE

Contribution format: Poster  
Contribution authors: Emanuele Intagliata (University of Milan) – Diana Dobрева (University of Verona)

Circular economy refers to those economic systems in which products or goods at the end of their life cycles are reintroduced into society by means of recycling, repair or reuse practices. The study of how these practices were implemented in antiquity has grown steadily throughout the past two decades, thanks to advances in ‘hard sciences’ in archaeology. This has created a wealth of studies dedicated to conservative or generative economic practices that are often limited to specific sites or periods and are usually difficult to compare because they use different methodologies. Over the past two years, Project CircE has attempted to overcome the fragmentation that has characterised the study of circular economy in antiquity by exploring this topic with a longue durée and multi-site perspective and using both a qualitative and quantitative approach. So far, the project has explored sites in northern Italy – and specifically in the provinces of Cremona and Verona – and focusing on a chronology between the end of the 1st century BCE and the 6th century CE. The aim of the poster is to present the methodology used by the project’s team and the results achieved using this approach until now, with a specific focus on the differences identified in the dataset between rural and urban sites.

185. THE ČIKAT BAY MODERN SHIPWRECK, ISLAND OF LOŠINJ – UNDERWATER CULTURAL HERITAGE. A VALUABLE CULTURAL PRODUCT

Contribution format: Poster  
Contribution authors: Zrinka Ettinger Starcic (Lošinj Museum) – Pavle Dugonjic (Croatian Conservation Institute)

An intact modern shipwreck has been discovered in Čikat bay in 2022 by Neno Starčić from the diving centre Subseason from Lošinj. The Lošinj Museum conducted the initial investigation on the reported site, and in 2023 began the systematic research in cooperation with the Croatian Conservation Institute, Department for Underwater Archaeology. The aim of the research was to define the spread of the ship’s construction and the overall extent of the site. The excavated section of the site included visible elements of the ship’s construction (mast, double

ribs, stringer, futtocks and planks), the ship’s anchor, five iron artillery pieces, numerous pieces of ship’s pottery and glassware (cups, stoppers, bottles), several cannon balls and musket shots, remains of rope, as well as two scattered clusters of regular stones, which might have been the ship’s ballast. The wooden construction points towards an extremely sturdy ship with double ribs, probably 30 meters of length. The artillery pieces are poorly conserved and overgrown, which prevents reading their characteristics or dating, but the preliminary identification of the stamp found on several ceramic vessels indicate their origin from northern Italy, most likely from the second half of the 18th century. By accepting underwater sites as an indispensable part of cultural heritage and identity of some destination, the area of the perception of cultural heritage is being spread from land to underwater. Underwater archaeology is one of the most important disciplines within the framework of archaeology in general. The island’s underwater cultural heritage makes the backbone of the island’s cultural heritage. Along with sites on land it offers a complete view of historic events. This makes heritage a valuable source, a cultural „home made“ product that is, for the development of cultural tourism and local economy.

235. THE SOCIAL ROLE OF DOGS IN THE NEOLITHIC AND BRONZE AGE SOCIETIES OF THE CENTRAL ASIAN STEPPE

Contribution format: Poster  
Contribution authors: Emma Usmanova (Saryarka Archaeological Institute of Karaganda Buketov University | Margulan Archeological Institute) – Polina Frikke (Independent) – Ilya Merts (Margulan Research Center of Archeological Studies, Toraighyrov University) – Kosintsev Pavel (Al-Farabi Kazakh National University)

The earliest dog remains in the Central Asian steppe are known from Neolithic and Bronze Age. Archaeologists record them in different contexts.

1. Within sacrificial complexes in settlements. Whole skeletons and individual bones of dogs may had been placed in individual pits or on the ancient surface.  
- in front of the entrance to a settlemen.  
- inside or at the entrance of a dwellin.  
- within the metal production site.  
Perhaps this ritual practice was meant to symbolize dogs as protectors of residential and metallurgic spaces.
2. Within kitchen remains. In some cases, the surface of the bones shows evidence of high temperature due to their thermal treatment before using dog meat as food.
3. Within sacrificial complexes in burial grounds. This pattern is common Steppe pastoralist Sintashta-Andronovo culture. in the late 3rd millennium BC. During this time, the steppe zone of this area is characterized by intensive development of livestock breeding and transition to a meat and dairy diet. Livestock became the basis of human subsistence. In this connection, the social significance of the dog was not limited by hunting wild animals and protecting the living space. The dog was engaged by humans into livestock grazing. This kind of activity raised the status of dogs. Accompanying humans to the afterlife, the dog took a dominant place in sacrificial complexes relative to other animals (cattle, sheep and goat, horse). Burials with dogs were often supplemented with prestige metal (axes, clubs, adzes, spearheads), stone (pestles for ore processing) and bone (harpoons) objects. That shows the high social status of deceased persons, who were accompanied by dogs.

445. TOPOGRAPHY OF THE AFTERLIFE. BURIALS IN THE CHURCH OF SAINTS FIDENZIO AND TERENCEIO (BASSANO IN TEVERINA, LATIUM, ITALY)

Contribution format: Poster  
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Recent investigations of the Church of Saints Fidenzio and Terenzio in Bassano in Teverina (Latium, Italy) uncovered 45 inhumations dating from the 3rd to the 19th century A.D. This long-term occupation provides an opportunity to reconstruct the evolution of funerary dynamics related to historical events and the Christianization process.



The earliest evidence (3rd-5th century A.D.) comprises eight tombs featuring diverse burial types and including individuals of various ages. Following the Lombard invasion and the establishment of a diocesan organization in the area, a rural church was probably built. However, no clear trace has been recognized yet. This phase (6th-9th century A.D.) yields ten ovoidal-shaped pit graves of infants along the same orientation, and a single logette tomb revealing the remains of an adult individual. The first construction of the church can be dated back to the 10th-11th century A.D., characterized by a small, single-nave structure, beneath which two subadult burials were found. The building retained its funerary function in the subsequent centuries, with only brief interruptions; the graves closely followed the architectural development of the church occupying the newly built spaces. This pattern continued until the final phase of use (18th-19th century A.D.), when trapezoidal wooden chest-type burials of infants, children, and adults were placed within the church. The reconstruction of funerary dynamics and mortuary practices offers a comprehensive diachronic perspective on the customs of this small community, identifying patterns of continuity and discontinuity. Although the demographic composition, topography, orientation, and types of burials vary over time, the long-term use of the site and the respect for earlier burials reflect a remarkable preservation of the community’s identity.

914. QUARTZ TOOL USE AND COMPOSITE TECHNOLOGY AT THE MESOLITHIC WETLAND SITE OF DAGSMOSSE: FIRST RESULTS FROM AN ONGOING USE-WEAR ANALYSIS

**Contribution format:** Poster  
**Contribution authors:** Jon Lundin (Societas Archaeologica Upsaliensis) – Sebastian Boström (Kulturen i Lund)

Recent excavations at the Mesolithic wetland site of Dagsmosse, Östergötland, Sweden, offer a rare opportunity to investigate quartz tool use and lithic technological practices. This paper presents the initial results of an ongoing use-wear analysis of 50 quartz artifacts, providing fresh insights into technological and subsistence activities at Mesolithic wetland sites in northern Europe. High-powered microscopic analysis has revealed a diverse range of micro-wear traces, demonstrating that quartz was regularly used in the processing of hide, wood, and bone. These findings suggest a dynamic tool economy in which quartz played a key role in everyday tasks. One of the most significant discoveries within this assemblage is a slotted composite bone point with quartz inserts, recovered in a damaged state from the floor of a possible dwelling structure. The quartz inserts display clear micro-linear impact traces (MLIT) alongside additional wear patterns that indicate their use as part of a composite implement. This discovery strengthens the hypothesis that Mesolithic groups systematically incorporated quartz into composite tools, highlighting the adaptability of hunter-gatherer technological strategies. Initial residue analysis has identified a range of organic remains on the artifacts, including charred material, intact plant tissue, phytoliths, fungal residues, and possible animal tissue. The breadth of preserved residues underscores the considerable potential of residue analysis for understanding Mesolithic tool use. However, further work is required to effectively distinguish taphonomic processes from functional residues and to refine interpretations of organic material preservation. This ongoing research contributes to wider discussions on Mesolithic technological adaptations, offering new perspectives on the integration of lithic and organic components. These findings enhance our understanding of prehistoric toolkits and the exploitation of wetland resources in northern Europe.

276 EFFICIENT ARCHAEOLOGICAL DATA MANAGEMENT WITH ARCHEOBASE: FROM DIGITAL DATA ENTRY TO ANALYSIS AND PUBLICATION

**Session theme:** 3. Exploring methods in research, education and communication  
**Session format:** Workshop  
**Session keywords:** Digital archaeology, Data management, FAIR data, GIS integration, Collaborative workflows, Archaeological publication  
**Session organisers:** Emmanuel Clivaz – Jean-Philippe Clivaz (ArcheoBase)

SESSION ABSTRACT

This workshop introduces ArcheoBase, a robust digital platform developed to address the key challenges facing archaeological documentation today: limited resources, fragmented workflows, lack of interoperability, and publication bottlenecks. Drawing on extensive research including interviews with cantonal services, universities, museums, and private institutions, ArcheoBase was designed as an end-to-end solution for archaeological data management. Participants will be guided through the entire documentation process, from structured digital recording in the field using customizable dynamic forms (via mobile or tablet), through post-excavation analysis, all the way to publication and public dissemination. Practical exercises will include the creation of stratigraphic units, sectors, Harris matrices, and site plans, demonstrating ArcheoBase’s integration of GIS, images, and structured metadata. A highlight of the workshop is a preview of the forthcoming web-based georeferenced drawing

tool, enabling collaborative vector-based documentation directly in the browser. Further modules will showcase how to manage publication workflows (with version control), enable multilingual web publication via IFrames, and ensure long-term archival preservation in compliance with FAIR data principles. This session is ideal for archaeologists, researchers, and institutions seeking to modernize their workflows, improve collaboration, and ensure the accessibility and durability of their digital heritage data.





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