



PYRAC

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Poznan Young Researchers'  
Archaeology Conference

**Book of Abstracts**

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## Unveiling Social Practices Through DNA: Close Family Ties at the Early Medieval Giecz

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Session: Archaeological Science

Keywords: aDNA, double graves, early medieval cemetery, kinship analysis

New results of the genetic analysis conducted on human remains from the early medieval cemetery in Giecz (11th – 12th century) shed new light on the structure of the community inhabiting this area in the early Piast period. The analysis of two double burials revealed close kinship among the individuals buried in each grave (possible mother-child and grandmother-grandchild relationships) and genealogical connections between these graves. This study represents the first application of genetic analysis at this site and stands as the sole investigation of double graves in the region.

The interdisciplinary findings of the study suggest that further analyses encompassing a broader range of burials from this site may yield valuable insights into the sociodemographic makeup of the local population. Genetic analysis may help to determine population size and kinship networks within the community. This analysis might help to answer the questions if there was a small, closely related group of individuals inhabiting this area during the formation of the Piast statehood and what was the further sociodemographic dynamics.

## Scythian life histories on the steppes of the northern Black Sea region: Interrogating mobility through biogeochemistry

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Session: Archaeological Science

Keywords: bioarchaeology, migration, oxygen isotopes, Scythians

Famous for their nomadic lifestyle, their command of horseback riding, their highly stratified social structure, and engagement in warfare, the Scythians are purported to have migrated from Central Asia and settled down in the area north of the Black Sea during the Iron Age. In order to interrogate this warrior nomad narrative, and learn more about their lifeways, we adopted a life course approach to mobility and performed oxygen isotope ( $\delta^{18}\text{O}$ ) analysis on dental enamel and bone from 33 individuals (25 adults and 8 subadults) recovered from Glinoe, Moldova, and dated to 4th – 2nd century BC. For each individual, we sampled multiple skeletal and dental elements (87 teeth and 18 bone samples total). We also performed oxygen isotope analysis of surface water (Krasnaya River and Turunchuk River) and groundwater (two village wells) from the vicinity of the site. Preliminary analyses show nuanced migration patterns emerging for both adults and subadults, painting a complex picture for the Scythians from the steppes of the North Pontic Region. Our aim is to add to the increasing corpus of direct studies on the diet and mobility of Scythian populations by addressing groups from the westernmost part of their territory, which were not previously included in biogeochemical analyses.

## Rethinking medieval cremation burials through digital archaeology

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Session: Archaeological Science

Keywords: Virtual reconstruction, digital archaeology, cremation burials, medieval archaeology

Virtual reconstruction has emerged as a pivotal tool in archaeological research, offering innovative methods for visualizing, analyzing, and interpreting past environments, artifacts, and structures. By bridging gaps in fragmented evidence, virtual models provide a means to reconstruct features and test their plausibility with precision. This paper examines the potential of virtual reconstruction to generate new insights and formulate innovative research questions. Virtual reconstructions also foster interdisciplinary collaboration by integrating data from disciplines such as anthropology, geology, and materials science. Functioning as "research hubs," these tools enable the spatial visualization of large datasets, facilitating the analysis of complex, interconnected information. Their interactive nature promotes iterative exploration, allowing researchers to pose "what if" scenarios and assess their feasibility under controlled parameters.

Case studies of early medieval cremation burials highlight how digital tools can be employed to test hypotheses related to construction techniques, spatial organization, and ritual practices—areas that often remain speculative in traditional approaches. Existing hypotheses concerning early medieval cremation burial mounds, particularly those of pre-Christian Slavic communities from the 8th to 10th centuries, are critically evaluated. When confronted with digital models and spatial data, these theories frequently prove inadequate, underscoring significant gaps in our understanding of burial customs during this period. Rather than providing definitive answers, this paper seeks to challenge the prevailing theories and highlight the uncertainties surrounding these practices.

This study argues that virtual reconstruction transcends its role as a visualization tool, serving instead as a transformative medium for knowledge production in archaeology. With ongoing advancements in digital technologies and the increasing accessibility of 3D software, simple reconstructions should become an integral component of archaeological fieldwork.

## Assessing Bone Health in Historical Populations: Insights from Mandibular Radiomorphometric Indices

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Session: Archaeological Science

Keywords: Bioarchaeology, Bone Mineral Density, Historical Populations, Mandibular Radiomorphometric Indices, Panoramic Radiography

Understanding skeletal health in historical populations provides a window into past lifestyles, health disparities, and environmental influences. This study explores the utility of mandibular radiomorphometric indices in assessing bone health in two distinct historical populations: an early-modern from Wroclaw (16th–18th century) and a medieval from Milicz (13th–14th century). Using panoramic radiography and direct bone mineral density (BMD) measurements via DEXA, we identified key mandibular indices that are predictive of BMD. Among the indices evaluated, Mandibular Cortical Width (MCW) emerged as the most robust predictor of BMD across both populations, reflecting sex-specific differences in cortical bone thickness. Mandibular Cortical Index (MCI), a qualitative marker of cortical morphology, demonstrated significant associations with age, particularly in females, highlighting its relevance for identifying age-related bone changes. The Antegonial Index (AI) showed a strong positive correlation with BMD in the Milicz series, while Antegonial Depth (AD) negatively correlated with BMD in the Wroclaw series, suggesting population-specific remodelling patterns.

Additionally, the Gonial Angle (GA) revealed sex- and population-specific differences, indicating its potential as a marker for demographic variation in bone health. Together, these indices offer a non-invasive and practical approach for evaluating bone health when direct densitometric methods are unavailable, such as in archaeological contexts.

These findings not only underscore the value of mandibular radiomorphometric indices in reconstructing skeletal health in historical populations but also provide archaeologists with innovative tools for studying the interaction between biology, culture, and environment. This multidisciplinary approach bridges bioarchaeology and clinical research, offering fresh perspectives on human health in the past.

## The simulator of an archeological site. Public archeology and science made accessible in Kulice

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Session: Archaeological Science

Keywords: archeology, Kulice, public, simulator, site

If the past is a foreign country, then nowadays we are able to arrive to it by many different means - and not all safe. In relation to the results of archaeology, we may observe that not only the past remains a foreign (and thus - intriguing) country, but that the same applies to the process of its study. In the popular media (including popular science media) the idea of field research is simplified or misunderstood altogether. Thus, the past continues to be depicted not only as foreign, but even forbidden, one that has to be uncovered against an imagined establishment. This conviction leads to many harmful processes, destructive to the archeological heritage both as a cultural construct and in its fragile materiality. Willing to counteract this, Dr. Marta Chmiel-Chrzanowska and Dr. Katarzyna Ślusarska (University of Szczecin) had proposed a following solution. In May 2024, at the grounds of The International Center of Interdisciplinary Studies in Kulice they created a “simulator of an archeological site”. The simulator facilitates the teaching of field research methods, while also mediating its significance to the broader public – the guests of the Center and the local people. By recreating typical conditions and objects, the simulator allows not only to depict, but actually show real excavations. Thus, the students experience them while not risking damaging any real site.

In 2025 the idea will be expanded. In vicinity of the simulator replica huts, shelters and graves will be constructed to depict life from the Stone to the Iron Age. The reconstructions will constitute a kind of an open-air museum. All structures will enhance the educational and touristic value of the Center in Kulice.

This paper aims to depict this concept in the context of best practices in both research and mediation of archaeological heritage.



## Of finery and rags: preliminary results of metalwork wear analysis on late bronze age pins

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Session: Archaeological Science

Keywords: copper-alloy, grave goods, bronze pins, traceology, use-wear analysis,

Metalwork wear analysis of copper-alloy artifacts is a quite broad term which includes in itself three separate methods of analysis of metal artifacts, those being archaeo-metallurgy, use-wear analysis and experimental archaeology. It's an amalgamation of many different schools of thoughts and this fusion results in many diverse, sometimes unexpected, results. In my work I focus mostly on artifacts previously considered lackluster in potential data, those being pins and other garment elements. Although the first mentions of application of aforementioned methods date back as far as origins of use-wear analysis itself, published studies considering jewellery began to appear as recent as 2016. Microscopic analysis of traces of contact between fabric and copper-alloy pins is an ongoing study that was started in 2019 as an archaeological experiment and was further expanded to include archaeological material. For purposes of the following presentation artifacts from Biernatki 1 (Poznań county) site were used as a case study. The burial ground uncovered there dates back to the 5th Central European Bronze Age period. Presentation will feature a biographical approach with an aim to reconstruct the "life cycle" of individual artifacts in order to define whether pins were used before deposition, and answer the question: can the amount of usage be measurable to any degree?

## **A take on approximation of workforce expenditure of neolithic rondel builders using architectural energetics**

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Session: Archaeological Science

Keywords: architectural energetics, rondel structures, workforce expenditure, experimental archaeology

In my speech I would like to address the topic of methods used to calculate workforce expenditures needed for the construction of monuments in the past. I will present both the methodology of the architectural energetics, including the mathematical formulae used in my study and the possible answers we can gain by its implementation. I will also address the problems connected with such calculations on the objects with forms invisible in the current terrain. I will do so on an example of my research concerning the topic of rondel structures (circural enclosures) from the Neolithic period, which haven't yet been investigated with the use of said method.

## Revolutionizing Buddhist Studies: 3D Terrestrial Laser Scanning of Takht-i-Bahi

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Session: Archaeological Science

Keywords: 3d Laser Scanner

Faro

Takht-i-Bahi

The integration of cutting-edge technology and historical evidence heralds a new era in Buddhist Studies. 3D terrestrial laser scanning exemplifies this synergy, combining innovative scanning techniques with tangible monuments and geographic evidence. The Digital Heritage Center at KPDOAM's pioneering work at Takht-i-Bahi showcases this approach.

Utilizing the FARO Laser Scanner, the Center is creating a meticulous digital reconstruction of the site. This high-speed, 3D laser scanner captures complex environments and geometries with unparalleled precision. By assembling images from millions of 3D measurement points, FARO enables:

1. Detailed documentation
2. Accurate measurement
3. Immersive 3D visualization

This initiative demonstrates the potential of 3D terrestrial laser scanning in:

1. Preserving cultural heritage
2. Enhancing historical understanding
3. Advancing Buddhist Studies

The Digital Reconstruction of Takht-i-Bahi project serves as a paradigm for the fusion of technology and scholarship, illuminating the ancient past and informing future generations

## The making of strontium isoscape for Poland

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Authors: Paulina Dudek

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Session: Archaeological Science

Keywords: baseline, Holocene, isotopic analysis, strontium isotopes

Strontium isotope ( $^{87}\text{Sr}/^{86}\text{Sr}$ ) studies in the Polish environment began in the 1980s but have only recently gained momentum for the systematic analysis of human remains. While early research provided valuable insights into human mobility and origins, it also highlighted significant challenges in sampling, data management, and interpretation.

This paper presents a compilation of strontium isotope data from Holocene human remains in Poland, tackling critical issues of data cleaning and standardisation. It emphasises the importance of utilising large datasets of human remains to establish local strontium baselines, especially for regions and periods lacking faunal remains or where pollution prevents the use of contemporary environmental samples.

By integrating strontium values with archaeological, geological, and environmental contexts, this study not only refines existing interpretations but also challenges previous conclusions. Enhanced data quality and sophisticated modelling and visualisation techniques pave the way for fresh insights into past human mobility and origins. I invite you to consider how the depth and rigour of our data, coupled with advanced analytical methods, can significantly transform our understanding of historical human behaviours.

## Human Migration Patterns in Dutch Hanseatic League Towns: A Comparative Study of Oldenzaal, Deventer, and Kampen

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Session: Archaeological Science

Keywords: Archaeology, Hanseatic League, Isotope analysis, Palaeomobility, The Netherlands

Until recently, historical archaeology has often been considered a supplementary approach to traditional historical methods when studying complex phenomena such as human migration patterns. This trend is evident in archaeological studies of the Hanseatic League, the most renowned (post-)medieval trade network in Central and Northern Europe. However, over the past two decades, the growing application of biomolecular methods in archaeology, including multiple isotope analyses and aDNA analysis, has significantly advanced human mobility research.

A previous study on a medieval population from Oldenzaal, a Hanseatic League town in Overijssel, the Netherlands, demonstrated that combining strontium ( $87\text{Sr}/86\text{Sr}$ ) and oxygen ( $\delta^{18}\text{O}$ ) isotope analyses with historical data is essential to comprehensively understand the complexity of migration patterns within the Hanseatic League (Kootker et al., 2019). Their integrative approach highlights the importance of considering broader influencing factors on past population dynamics in these cities. Building on this study, the present research investigates two additional Dutch Hanseatic League towns, Deventer and Kampen, situated along the IJssel River. Unlike Oldenzaal, whose economy relied on inland trade networks, Deventer and Kampen thrived longer due to their involvement in extensive maritime trade networks. This study seeks to determine whether these towns exhibit comparable or contrasting human mobility patterns relative to Oldenzaal.

To address this,  $87\text{Sr}/86\text{Sr}$ ,  $\delta^{18}\text{O}$ , and  $\delta^{13}\text{C}$  isotope data are collected from the tooth enamel of 24 individuals from Kampen and 20 individuals from Deventer. It is hypothesized that a higher proportion of non-local populations will be identified in Deventer and Kampen compared to Oldenzaal, reflecting their more frequent, intense, and economically significant interactions with other Hanseatic towns across Europe.

## Tradycje funeralne w Grecko-Rzymskim Egipcie. Wyniki wstępne

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Session: Archaeological Science

Keywords: Greco-Roman Egypt, necropolis, graves, decoration, funerary architecture, tombs

Based on a selection of archaeological sites across Egypt, this research aims to thoroughly investigate and present the cultural dynamics of the Greco-Roman period, a time marked by profound societal transformations and interactions. The study focuses on the period spanning from the conquest of Egypt by Alexander the Great in 332 BCE to the end of Diocletian's reign in 305 CE, a timeframe that encapsulates significant political, social, and cultural changes. The diverse ethnic composition of the Nile Valley during this period—comprising native Egyptian, Greek, and Roman elements—makes it an especially compelling subject of analysis.

The findings highlight the intricate interplay of cultures, each striving for influence while simultaneously adapting to and shaping one another. This cultural symbiosis is most evident in Alexandria, which functioned as the intellectual and artistic epicenter of Egypt from the Ptolemaic period onward. As a comparative benchmark, Alexandria provides crucial insights into the broader cultural trends and developments that influenced the rest of the region. However, notable regional distinctions are also observed, particularly between the traditions of northern and southern Egypt, where local customs and practices often diverged significantly.

The study further delves into the material culture of the time, with a particular focus on the furnishings, decorations, and architectural elements of tombs. By interpreting these elements, the research provides a deeper understanding of the values, beliefs, and interactions of Greco-Roman society in Egypt. Ultimately, the work seeks to illuminate how these diverse cultures coexisted, influenced one another, and contributed to the unique cultural identity of this remarkable era.

## From bones to ritual? The case study of the Oksywie and Wielbark cultures site of Lipianki (Poland)

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Session: Archaeological Science

Keywords: Barbaricum, Poland, ritual deposits, Roman period, zooarchaeology

Archaeological sites dating to the late Iron Age period in present-day Poland brought an abundance of animal deposits that can be defined as associated bone groups (ABGs). This term describes a structured deposit of animal remains that differs somehow from typical utilitarian/food waste, often meaning complete skeleton or partial deposits of specific anatomical groups. From the archaeozoological perspective, among the most common and well-elaborated ABGs are so-called dog burials. Remains of other domestic mammals, e.g., ovicaprids or pigs, have also been classified in this category. However, the ritual interpretation of non-dog ABGs was inferred mainly from their archaeological contexts. Recent discoveries of such deposits create a new opportunity for revised research on their cultural genesis, with a broader application of archaeozoological methods and data.

During the excavations of the Lipianki site in northern Poland, carried out by the Archaeological Museum in Gdańsk, many animal deposits were unearthed. Most of them were found within the features attributed to Oksywie or Wielbark culture. This paper presents the results of the archaeozoological study of 68 associated bone groups from the site. The study was performed in the frame of the author's master thesis. The material consists of dog deposits in 48%, 36% ovicaprids, 10% pigs, and just a few finds of horses (3%) or cattle (2%). The starting point for these studies was to review the current state of knowledge about interpreting ABGs as ritual deposits, their archaeological (spatial and stratigraphic contexts, chronology), biological (age of death, sex, osteometry), and taphonomic characteristics. Obtained data allowed to propose the non-utilitarian, possibly ritual interpretation of the genesis of the most numerous deposits based on the archaeozoological and taphonomic traits compared to the rest of the faunal material (typical food waste) from the site.

## How do archaeological materials reflect the history of the Hasding gens? A comparison of written and archaeological sources.

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Session: Finds, Field and Material Studies

Keywords: Hasdingi, Vandals, Blažice-Bereg culture, Roman Period, written sources

The Hasdingi gens, associated with the Vandals, emerges as the most extensively documented Vandal lineage in ancient sources, despite the absence of an *origo gentis* — an origin myth. The first mention of the Hasdingi dates back to 171 CE, during the *Expeditio Germanica Prima*, when they clashed with groups possibly of Dacian origin, including the Costoboci and the Lacrings (alternatively identified as Dacrings). This event marked the beginning of their centuries-long migration, which concluded only in the early 5th century in Africa.

During their migration, the Hasdingi established settlements along the Upper Tisza River, where they developed within the framework of the so-called Blažice-Bereg culture, spanning phases B2/C1 to D1 (171 CE – 405/406 CE). Archaeological evidence linked to this culture suggests significant Dacian influences, both from independent tribes and those integrated into the Roman province of Dacia. Key events of this period included the continuation of the Marcomannic Wars, Emperor Caracalla's campaigns in the Central Danube region, Vandal-Gothic conflicts, and the Hunnic incursions into Europe.

The deeds of the Hasdingi are documented in works by ancient historians such as Cassius Dio, Jordanes, Zosimus. References to the Vandals, though often without distinguishing the Hasdings specifically, also appear in texts like Tacitus' *Germania*, Ammianus Marcellinus' *Roman History*, the *Origo Gentis Longobardorum* and Jerome of Stridon's *Letters*.

The analysis of these sources enables not only the reconstruction of the Hasdingi' journey but also a deeper understanding of the cultural and political significance of the Vandal tribes in the context of the late antique world.



## The mystery of a jug? — About one unusual form of the jug from Lower Don hillfort.

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Session: Finds, Field and Material Studies

Keywords: Don Delta region, gray ware, Sarmatians, Meotians

In 1958, during the excavations at the necropolis of the Kobyakovskoye hillfort, an archaeologist discovered a gray ware jug in one of the burials dated back to I C.E. Its unique form to this day doesn't have any analogies from this site. In 2008, in an article titled "The mysterious history of a jug," V.M. Kosyanenko gives only two known herself analogies to this form. They were also found in the Don Delta region. Unfortunately, she did not try to find the origin of this form or answer questions about its function. In my presentation, I would like to present this form compared to the gray ware complex from other necropolises of Lower Don hillforts and the city of Tanais. Trying to answer the question about its origin, analogies, and function. Discussing if the history of this jug is really mysterious.

## Mahal Teglinos: A Federal Cemetery of the 3rd Millennium BC and Its Role in the Ideological Landscape of Eastern Sudan”

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Authors: Ezzeldin Absdalrahim Omer Hajjaj

Affiliation: PHD Candidate

Session: Finds, Field and Material Studies

Keywords: Mahal Teglinos, Eastern Sudan, Domestication, Burial practices, Social and religious beliefs.

Mahal Teglinos, located in Eastern Sudan near the Jebel Taka complex, represents a key archaeological site for understanding the complex cultural and economic developments of the 3rd millennium BC in the Horn of Africa. Excavations conducted by the Italian Archaeological Mission and the Butana Archaeological Project have revealed a rich stratigraphy of settlement areas and monumental cemeteries. These cemeteries, marked by monolithic stelae, contain burials that offer insight into the region's social and ideological landscape.

The site, dating primarily to the Gash Group phase (mid-3rd to early 2nd millennium BC), highlights the rise of agropastoral economies, with evidence for the domestication of sorghum, barley, and Ziziphus, alongside the raising of cattle and sheep. Mahal Teglinos offers crucial data on the interconnections between the Nile Valley, the Ethio-Eritrean highlands, and the emerging long-distance trade networks of the time, positioning the site as a significant point in the development of early hierarchical societies and the eventual rise of nomadic pastoralism.

This study examines the role of Mahal Teglinos in the broader context of ancient Sudanese societies, focusing on its function as a burial site and its reflection of complex social and religious beliefs. Through an analysis of the cemetery's structure, grave goods, and burial practices, the research explores the interaction between local traditions and broader regional influences, including those from Nubia and Egypt. The findings highlight how the site served not only as a space for honoring the dead but also as a symbol of political power, religious ideology, and identity within a dynamic and evolving cultural environment. The role of monumental cemeteries like Mahal Teglinos in shaping the ideological and social fabric of Eastern Sudan provides a deeper understanding of the region's ancient history and its connections to the wider ancient world.

## Late Islamic Chapter in the History of Tuwaneh, southern Jordan

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Affiliation: University of Warsaw

Session: Finds, Field and Material Studies

Keywords: Islamic Pottery, Macroscopic Analyses, Southern Jordan, Tuwaneh

The Tuwaneh site is located in Tafila-Hesa district, Southern Jordan, on two opposing hills divided by a natural wadi. It has been a subject of interest to European researchers for many years, resulting in surface surveys conducted at the site. Preserved fragments of monumental architecture and surrounding buildings have been linked to Nabataean and Roman settlement, which also continued into the Byzantine period. Zbigniew Fiema, based on the results of the Via Nova Traiana Project, established the presence of later buildings dated through ceramic material to the middle Islamic period. However, it was not until the surface surveys carried out by the team of ArTu-DTu - Archaeological Study of Dajaniya and Tuwaneh from Cracow in 2018, 2019 and 2022 that its chronology could be more accurately determined. At that time, ceramic material was collected from the numerous robber trenches, which was then analyzed in detail. The material collected in 2022 showed unquestionably the presence of Ayyubid-Mamluk pottery, predominantly group of Hand-Made Geometrically Painted Wares, which is not found anywhere else on the site. The fact that ceramic material was obtained from different parts of the site made it possible to see some variation in the chronology of the material dividing the site area into different zones. Late ceramic material is visible only in the southeastern part of the site within a separated group of building remains.

The purpose of the following presentation is to put a stronger emphasis on presenting the Islamic ceramic material and the macroscopic analyses carried out on it and only briefly describe the earlier ceramic material. This material provides evidence for the existence of a settlement hiatus interrupted by the appearance of an Islamic community reusing, in part, the preserved remains of earlier buildings, and significantly enriches the history of the site.

## Why disturb a dead Viking? Some reasons for Viking Age grave reopening according to medieval literature and archaeology

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Authors: Jan Gryz

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Session: Finds, Field and Material Studies

Keywords: grave disturbance, grave robbery, Icelandic sagas, Scandinavia

Grave reopening, also referred to as grave disturbance, is a phenomenon increasingly recorded in archaeological research. In the case of Viking Age Scandinavia (8th-11th centuries), scholars have not only archaeology at their disposal to discuss this issue, but also rich medieval literature, primarily the Icelandic sagas. According to the medieval sources, there were various reasons for grave reopening, such as: desire to earn riches and glory, mere grave robbery, taking out weapons, reincarnation of the deceased, access to the deceased's body, and search for shelter. Previously, disturbed graves were often classified by archaeologists as 'robbed', yet in recent years more nuanced interpretations have been put forward. Some of them agree with the accounts of grave reopening found in medieval sources, which suggests that this literary motif could date back to the Viking Age, or at least that it is not purely fictional. The topic of grave disturbance offers us a unique opportunity to see how archaeology and sagas can be used to explain this diverse and often strange phenomenon.

## From Damascus Steel to Modern Steel Base Composites: Classification and Evolution of Multi-Layered Materials.

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Session: Finds, Field and Material Studies

Keywords: Damascus steel, Forge-welding, Metallurgical techniques, Multi-layered steel, Wootz steel

The history of patterned steels stretches back to antiquity, closely intertwined with the evolution of metallurgical techniques. Ancient layered materials can be broadly categorized into two main types: crystalline and forge-welded Damascus steel. Wootz, probably developed in ancient India, spread via trade routes like the Silk Road, reaching Central Asia and the Middle East. Renowned for its unique patterns created by spheroidized cementite within a ferritic matrix, wootz remained a cornerstone of craftsmanship until its production ceased in the 17th century. In parallel, forge-welded steel, developed in ancient Europe and Asia, relied on multi-layered construction techniques to enhance mechanical performance while retaining visual appeal.

Historical production methods of these materials, such as the Indian crucible process, Persian graphite method, and the pattern welding technique achieved a balance between hardness, flexibility, and toughness. These techniques not only highlight the ingenuity of ancient metallurgists but also address the challenges of limited material resources.

In modern materials science, multi-layered steel (MLS), inspired by forge-welded Damascus steel, is a metal-metal composite made of alternately layered alloyed and high-alloyed steels with distinct mechanical properties. Its design aims to combine the strengths of different steel grades, resulting in enhanced strength, ductility, hardness, and resistance to wear and corrosion. Produced using various steel grades, characterized by ferritic, austenitic, martensitic, or bainitic structures, and tailored for specific applications.

The great variety and confusion in the use of terms to describe the different types of MLS necessitates the proposal of a new classification. As a result of our research, we classify historical multi-layered materials based on their production techniques, microstructural characteristics, and cultural significance. The results involved extensive literature reviews, archival queries, and re-analysis of existing metallographic images, allowing us to refine our understanding of the technological processes and material properties of ancient patterned steels. As a result of our research, we are proposing a new division for historical multi-layer steels.

## Kneading history. Some remarks on the pottery assemblage from Tell el-Farkha of season 2022

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Session: Finds, Field and Material Studies

Keywords: Lemon-shaped jars, Lower Egyptian Culture, Pottery, Tell el-Farkha

The site of Tell el-Farkha, located in the Eastern Nile Delta (Egypt), is continuously excavated by joined Polish expedition of Jagiellonian University in Kraków and Archaeological Museum of Poznań since 1998. During the works, remains of one of the predynastic cultures developed in North part of today Egypt territory, dated back to the 4th millennium BCE, have been discovered. One of them, the Lower Egyptian Culture (LEC) is recognised as an important step in the origin of the Egyptian statement.

Pottery assemblage unearthed during the fieldworks of the season 2022 contained typical sherds and vessels, observed also on various sites of the Delta region in this period. Among them both Closed Form Vessel like so-called Lemon-shaped jars and bag-shaped jars, and as well as Open Form Vessels like bowls and trays, as well as Kitchen Ware have been recognised. Some of the shards were decorated with incised patterns with the most popular motifs of zig-zags and lunulas. Very interesting are also shards with fiber-temper of probably organic origin, interpreted as the cultural marker of the LEC.

Analysis of the mentioned assemblage confirmed technological development of the pottery production skills of the inhabitant of the site in the period. Additionally, social diversification and production specialisation can be observed. In conclusion, the pottery mentioned assemblage confirmed the significant evidence of the LEC, highlighting the site's role in the early cultural and social development of Predynastic Egypt.

## Fragments of Cartonnage Coffins from National Museum in Poznań

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Session: Finds, Field and Material Studies

Keywords: cartonnage coffins, comparative studies, Egyptian art, iconography

In my paper, I will present the results of my research on unpublished fragments of cartonnage coffins from the collection of the National Museum in Poznań. Their provenance is not known and the exact dating is not recognized. However, we are not helpless as to get valuable information from those tiny fragments. Therefore, I will demonstrate my research method, using iconographic analysis, comparative studies, as well as theoretical reconstructions. The minute description of the piece enables the proposal as to at which part of the coffin a given fragment was originally located. Logical design schemes of Egyptian cartonnages, based on symbolic references of particular parts, make possible identification of original placement and reasoning *pars pro toto*. Looking for possible parallels may help in establishing a precise chronology and suggest an original context, including an area or region. This procedure is the opposite of a “traditional” archaeological fieldwork, when the objects (like coffins) are discovered in a well-defined context of a site and eventually find their way to a museum collection.

## Pottery Production and Consumption in the Qumayrah Valley: Results of the Analysis of Pottery from the Umm an-Nar Settlement (QA3) at Ayn Bani Saadah, Oman.

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Session: Finds, Field and Material Studies

Keywords: Ayn Bani Saadah, Bronze Age, Oman, Pottery analysis, Umm an-Nar pottery

The Qumayrah Valley, located in the northwestern region of the Hajar Mountains, is a microregion with several dozen archaeological sites of different chronologies. It is located in a key location – between the important oasis settlements of Bat and Hili.

One of the sites in the microregion is Ayn Bani Saadah, excavated since 2015 by the Omani-Polish Archaeological Mission – the Qumayrah Valley Project. It is actually several neighboring sites from the Bronze and Iron Ages. The QA3 site is a settlement from the Umm an-Nar period. Remains of residential buildings and a monumental tower, characteristic of this culture, were discovered on the site.

The aim of the presentation is to present the results of the analysis of pottery from the Umm an-Nar settlement (QA3). Typological, geochemical, and petrographic analyses have identified the main characteristics of the pottery produced in this region, as well as its functions and usage. The results of the analyses constitute an important step towards understanding the production and consumption of pottery in the context of the site and the entire microregion.



## Medieval phases of the church of the Most Holy Salvator in the light of verification of documentary material from archaeological investigations.

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Session: Finds, Field and Material Studies

Keywords: archeology of architecture, romanesque architecture, romanesque art

The Church of the Most Holy Salvator is one of the most mysterious buildings of the medieval period within present-day Krakow. The circumstances of its foundation, its original function and form are more or less unknown. It is uncertain whether the outline of the perimeter walls and internal divisions, mostly preserved in the form of foundations and their negatives, reflects only unrealised building plans or the actual use of the church in its various phases during the Middle Ages. Reaching for surviving documentation from archaeological investigations carried out by various researchers between 1955 and 1990 has resulted in new conclusions, verifying previous hypotheses about the process of the creation of Salvator's church. In the introduction of the paper, the current state of research on the church will be presented in summary form. I will then move on to present conclusions from the analysis of the wall relics preserved outside and inside the present building, discovered and documented by archaeologists. These will form the basis for a new concept of the appearance of the church in its medieval phases, supported by three-dimensional reconstruction models made for the first time for this building. The poor state of preservation of some parts of the church has led to the need to adopt several possible variants for the solution of its above-ground parts, including above all the forms of the western massif and the transept, which will translate into the need to show the mentioned reconstructions in several versions.

## Reinvestigation of Buddhist Narrative Relief Panels in the Dir Museum, Chakdara Khyber Pakhtunkhwa, Pakistan.

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Session: Finds, Field and Material Studies

Keywords: Buddhist Art

Dir Museum

Directorate of Archaeology and Museums

Narrative Relief Panels

A magnificent collection of Gandhāran Buddhist sculptures and narrative relief panels is currently housed in the Dir Museum, Chakdara of the Khyber Pakhtunkhwa Province of Pakistan. The collection consists of a variety of stone and stucco images of Buddha, Bodhisattva, devotees, and relief panels, chiefly discovered in the ruined Buddhist sites of district Dir by the archaeologist from the Department of Archaeology, University of Peshawar and Directorate of Archaeology and Museums, Khyber Pakhtunkhwa, Peshawar. Some of these sculptures are displayed in the cases whereas, the others are reserved in the reserved halls of the Museum. The present study aims to focus on the re investigation of the iconography of some of the enigmatic and ignored narrative relief panels in the light of Buddhist literature and comparative analysis.

## Coins of the ΒΑΣΙΛΕΩΣ ΜΕΓΑΛΟΥ and ΦΙΛΕΛΛΗΝΟΣ – A brief commentary on the Coinage of Tigranes I (c. 152-111 BC)

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Session: Finds, Field and Material Studies

Keywords: Coinage, Greater Armenia, Hellenistic Period, Tigranes I

Upon his death around 160 BC and handing over his kingdom to his successors, Artaxias I likely hoped that they would continue his work he had begun for developing the state. However, the death of the aforementioned monarch started the beginning of unfavorable period for Greater Armenia. Without a talented and charismatic ruler, significance of this kingdom started to decline. The domain of the younger Orontids, once an active participant in the political and military struggles, around 160 BC became merely a passive observer of the events unfolding around them. Both Artavazdes I (c. 160-152 BC) and his younger brother Tigranes I (c. 152-111 BC) could only refer back to the period of their father through the issuing of rare bronze coins with their portraits. In recent decades, much myths and distortions have arisen in scholarly literature, particularly concerning the currency from the time of Tigranes I. Given very limited number of sources, accurately attributing specific currency to the reign of aforementioned monarch could be the only way to shed some light on the kingdom of Greater Armenia in the second half of the 2nd century BC. The image of Tigranes I, though somewhat barbarized in its overall outline, still fits within the canon of royal representation established during his father's reign, perhaps in that way signalling a certain attachment to tradition. On the other hand, the language used in the legends and the depictions from the reverses may quite clearly communicating the kingdom's approach towards a world that arose from the campaigns of Alexander III.

The presentation will address the correct attribution of specific bronze coins to the reign of Tigranes I, and it will also discuss what this currency can reveal about the kingdom of Greater Armenia in the second half of the 2nd century BC.

## Ghost, medicine formula and pigeon - Late Roman Amphora 4 in the written and iconographic sources

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Session: Finds, Field and Material Studies

Keywords: amphora, Ashkelon jars, Gaza jars, iconography, written sources

Late Roman Amphora 4, also known as Gaza and Ashkelon jars, is a pottery produced in Southern Levant and broadly distributed through the Mediterranean in 4th-7th/8th c. CE. The vessels were mainly used for the wine transportation, although there are examples of LRA4 which reveal that olive oil, sesame oil, figs and fish products were stored in them as well. Gaza and Ashkelon jars and their contents were mentioned in historical and iconographical sources. The wines were recalled by ancient historians e.g. Cassiodor, Gregory of Tours, Venantius Fortunatus, Corippus. Moreover, Gaza and Ashkelon jars were listed in papyri from Oxyrhynchus and Nessana. Nevertheless, the popularity of the vessels was so great that they were depicted on mosaics. The examples of such representation are known from mosaics in Beer Shema, Kissufim and Petra. The aim of the presentation is to demonstrate that Gaza and Ashkelon jars and the products stored in them were well known to Mediterranean society of Late Roman and Early Byzantine periods.

## Decorative techniques in bronze belts and situlae from the Iron Age of northern Italy.

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Session: Finds, Field and Material Studies

Keywords: Decoration, Belts, Iron Age, craftsman

The decoration of the belts and situles is inscribed in the records of the large laminated bronzes often obtained by hammering. This technique seems to be the oldest used in metal in its origins in the characteristics of Central Europe and the Middle East. In the first centuries of the Italian era (900 BC), the artisans of the metalworking sector acquired a master of the fusion technical. The product laminated in bronze form a superior age and are as special as the latest innovations in the ateliers of the centers of the north of Italy. Considering the technique of the ensemble of the procedure here involves the mise en phase of several metal pieces and the term for the decoration of the object. The aesthetic value is important and is obtained after a series of consecutive or simultaneous phases. The fabrics and decorations showcase the high artistic level and technique atteint, as well as the soulful innovations in the ateliers of production centers in the north of Italy. The decoration of women in the object is rich and unique, which proves the talent of the artisan. It can be created in detail or in detail according to the moulage, styling or afterward. The decoration can be placed in place on the imprint, and can be reprised in post-foundries with a tool, to accentuate the reliefs. For others, a secondary thread can be used as a decorative or functional element. These motifs can be worked on in volume or engraved. The different techniques acquired by the artisans during their travels and which are then transmitted, and adapted in ways appropriate to each region. What is certain is that there are changes in trade, cultures and personnel in order to facilitate the circulation of models; as of the names it is confirmed and there is a general influence on the decorations of the laminated bronzes. These decoration techniques that are find in the ceilings of the north of Italy following the Iron age are equally common in other productions such as the sword.

## Scandinavian archer burial from Karczyn graveyard – bone arrowheads from the Roman Period in the light of use-wear analysis and comparative studies

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Session: Finds, Field and Material Studies

Keywords: arrowheads, bone and antler, Karczyn graveyard, Roman Period, use-wear analysis

The Przeworsk culture burial ground in the village of Karczyn in the Kuyavia region is a unique archaeological site dating to the Roman period. The Karczyn/Witowy site has already lived to see a full monographic study. However, the 2015 publication doesn't describe in detail object number 306: a skeletal grave of an adult individual. Both the type of burial and its grave furnishings stand out from other sites in the necropolis. Particularly noteworthy are the bone arrowheads, which have no analogues in the area encompassing the extent of the Przeworsk complex and are the only relics of this type in present-day Poland. According to the authors, they should be attributed to Northern European origin, as indicated by numerous finds from the territory of present-day Norway, Sweden and Denmark. Scandinavian scholars have even developed a typology of arrowheads on their basis, which can be successfully applied to the Kuyavian artefacts. The first part of this paper will discuss the detailed context of object 306, the so-called Scandinavian archer. Elements indicating its northern European origin will be presented, including the results of strontium analyses on the teeth. In the second part of the paper, bone arrowheads will be discussed, which have been assigned in relation to the typology of Scandinavian arrowheads. The results of the use-wear analysis of the arrowheads, which provided a range of macro- and microscopic traces, will be presented. Conclusions have been drawn from these, providing new data on the technology of their manufacture and the ways in which the arrowheads were deposited on the radiuses. On the other hand, a numerous group of distinctive traces made it possible to determine their utilitarian function. The organic remains registered on the surface of the artefacts were subjected to analysis, the results of which will also be presented in the paper.

## Is the “Attic” Black-figure Hydriskos from the National Museum in Poznań a Forgery?

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Session: Finds, Field and Material Studies

Keywords: Comparative study, Forgery, Greek art, Greek vases, Hydriskos

At the conference, I would like to present a case study of a hydriskos (also called hydricke or small hydria) belonging to the Adam Mickiewicz University (currently a deposit at the National Museum in Poznań). This object is studied as part of the project that aims to publish Greek vases from the museum's ancient art collection. The hydriskos was acquired by Professor Mieczysława Ruxer (1891-1957) in the first half of the 20th century. According to the object's charter, it was made by an Attic workshop and the time of its creation is determined to be the third quarter of the 6th century BC. This small-sized object depicts two thematic scenes - the *ἱερός γάμος*, or holy marriage of Dionysus and Ariadne, and second, Heracles fighting the Nemean Lion.

During this presentation, I will focus on the art-historical and typological results of my research. The main part will focus on the uncommon shape and the painting on the object, as well as conducting a full comparative analysis with other hydriskoi, miniature vessels (amphoriskoi, krateriskoi) and full-size hydriai. Consideration will also be given to the identification of the object as a possible forgery, in addition to the capabilities of modern research methods such as X-ray fluorescence (XRF) and thermoluminescence dating (TL).

## Trendy and ignored? Archaeological Heritage in the Municipal Monuments Care Program

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Session: Heritage

Keywords: Archaeological heritage; local strategies; heritage management, social survey

The Municipal Monuments Care Program is a strategic document that the Polish municipality is required to adopt once every four years, and to monitor and report on two years after its adoption. Meanwhile, according to Polish Statistics Office survey from 2019, only 32% of municipalities had a current and valid program enacted. New statistics, which will be published in the spring of 2025, will most likely show an increase, but these numbers are alarming. As part of a doctoral project, we investigate the implementation of archaeological heritage education in Polish localities and the extent to which archaeological heritage assets are utilized in local strategies. The Municipal Monuments Care Program is a crucial development document as it addresses directly local heritage as a whole, and – potentially – as a development agent. The article will present preliminary results of the survey conducted in Polish municipalities regarding this strategic document. It was conducted online in March and April 2024 using the CAWI (Computer Assisted Web Interview) method, by emailing link to the survey to all municipalities in Poland (apart 22 municipalities impossible to reach due to incorrect e-mail addresses or overflowing e-mail boxes). As a result, the survey was forwarded to over 99.1% of potential respondents. With the response rate around 21%, the sample is acknowledged as representative and the survey results can be extrapolated to represent the entire population of municipalities in Poland.



## Exploring postcolonial perspectives in Mediterranean archaeology: An example of archaeological discourse analysis

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Session: Heritage

Keywords: colonial discourse analysis, colonialism, colonisation, Mediterranean archaeology, postcolonial archaeology

The 19th- and 20th-century colonial discourse was significantly shaped by the then perceptions of the colonial or imperial activities of ancient Phoenicians, Carthaginians, Greeks, and Romans. Representations of ancient colonial situations, including those constructed by archaeology, influenced Western societies' attitudes towards the colonial policies of their states. This entanglement resulted in Mediterranean archaeology becoming deeply embedded in colonialism. Given that the ancient world served as a point of reference for Western colonial powers, the application of a postcolonial perspective in this field emerges as particularly compelling, both for archaeology and for postcolonial studies.

The incorporation of a postcolonial perspective into archaeological studies has profoundly impacted various areas: researchers' self-awareness and critical examination of the discipline's history (historical dimension); social responsibility of researchers, archaeologists' approaches to local and indigenous communities, community participation in scientific projects, and changes in heritage legislation (practical dimension). These issues can be framed within the domains of the history of archaeology, indigenous archaeology, community archaeology, and public archaeology. However, the changes also extended to interpretations constructed by researchers, giving rise to fields such as the archaeology of colonialism or the archaeology of colonial encounters (interpretative dimension).

The aim of the presentation is to explore the diversity within the interpretative dimension of the postcolonial approach. Particular attention will be given to the terminology and theoretical background of postcolonial applications in Mediterranean archaeology. This will be achieved through a comparative analysis of several academic texts that form part of the postcolonial archaeological discourse on ancient colonial situations. The analysis will be based on the works of Peter van Dommelen (1997, 1998), Michael Dietler (2005), and Tamar Hodos (2006).

## Effectiveness of criminal law protection of archaeological heritage in Poland over the last 25 years

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Authors: Jakub Artemiuk

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Session: Heritage

Keywords: archaeological heritage, crime statistics, destruction of archaeological sites, illegal metal detecting, Polish heritage law

The purpose of this paper is to present the most important criminal provisions on the protection of archaeological heritage in Poland, in force over the last 25 years, and the effectiveness of their enforcement. The provisions concerning crimes and offences most related to archaeological heritage were placed first in the Act on the Protection of Cultural Property of 15 February 1962 and then in the Act on the Protection and Care of Monuments of 23 July 2003. On the basis of statistical data on the number of ascertained and detected crimes and offences under the above mentioned acts and the ways of completing the enquiries, collected from the areas of activity of all voivodeship police headquarters in Poland, an attempt was made to assess the effectiveness of criminal law protection of archaeological heritage and its possible regional variation. The paper also addresses the problem of the possibility of estimating the scale of crime against archaeological monuments on the basis of available research data and presents proposals for changes aimed at increasing the level of protection of archaeological heritage in Poland.

## Family Crypt: Case Studies of the Research on Noble Crypts of Western Pomerania from the 16th-17th Centuries

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Session: Heritage

Keywords: ancestral memory, epigraphy, funerary culture, interdisciplinary research, Pomeranian nobility

Marcin Majewski, Monika Ogiewa-Sejnota, Joanna Rennwanz, Katarzyna Ślusarska  
Since 2020, an interdisciplinary team has been investigating the crypts of West Pomeranian noble families, with a focus on sites spanning from the mid-17th to the mid-19th centuries. The research examines three noble burial sites: the von Glasenapp crypt in Białowas (Balfanz), the von Oesterling crypt in Koszewo (Groß Küssow), and the von Wedel crypt in Bród (Braunsforth). The program, Research on Noble Crypts of Western Pomerania from the 16th-17th Centuries, aims to reconstruct the funerary culture of Pomeranian nobility and restore dignity to their final resting places.

A comprehensive research protocol integrates historical inquiries, artistic and epigraphic analysis of sarcophagi, osteological examination of human remains, and inventories of burial materials. Sampling of undisturbed remains for DNA and stable isotope analyses, alongside tests for organic remains such as pillow infill and embalming herbs, provides insights into burial practices. Additionally, the layout of burials and programs of ancestral memory are reconstructed by combining historical sources with osteological data, shedding light on family relationships and social narratives.

The crypts, in conjunction with commemorative structures (tombstones, gravestones, and epitaphs), served as unique memorials emphasizing family legacy, social standing, and patronage roles. Plant remains analyses reveal the symbolic role of flora in Protestant funerary rituals. Ultimately, each crypt is closed and protected to prevent further degradation and ensure the preservation of these invaluable cultural sites.

## The effect of climate on the urban space of Siraf in the early Islamic centuries (case study: noble houses)

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Affiliation: Master student

Session: Heritage

Keywords: Siraf, climate, architecture, early Islamic centuries, noble houses.

Throughout history, humans have always wanted to have a shelter to live in, and this need and desire became the beginning of building and architecture. It was necessary to build a shelter and a building, dealing with the surrounding nature. The design and construction of architectural spaces are always influenced by nature, climate, and geographical location, and we can clearly see this influence even in the use of materials used in the construction of architectural buildings. The historical port of Siraf is located on the northern coast of the Persian Gulf in Bushehr province and 38 km from Kangan port. Geographically and climatically, Siraf is considered one of the hot and humid areas. The Zagros mountains, which continue from the Iranian plateau to the sea, end at Bandar Siraf; As a result, it creates a strip one kilometer wide by the sea. The location of Siraf in the restrictive conditions of the mountains and the sea has made it impossible to expand the city.

The main goal of the current research is to investigate the climate of Siraf and the influence of the region's climate on the architecture and design of residential buildings in Siraf, known as noble houses, in the early Islamic centuries. In this research, we are looking for an answer to the question of how the climatic and geographical conditions have affected the architecture of Siraf buildings. The theoretical framework of this research can be expressed based on the influence of climate on the historical architecture of Bandar Seraf and the spatial analysis of archeology. Also, the research method will be analytical-descriptive and using field and library studies. The authors of the article believe that the architectural spaces of the early Islamic centuries of Siraf city were affected by the climate and geographical location, and the architects started building buildings by considering factors such as the sun's radiation, wind direction, and the position of the mountains and the sea. To use the regional and environmental potential for buildings.

## Community forests as a forum for the protection of the archaeological heritage - the perspective of public archaeology

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Session: Heritage

Keywords: archaeological heritage protection, citizen science, community forests, public archaeology, public participation

Community forests in Poland are becoming an increasingly powerful forum for the cooperation between public institutions and local communities, opening up new opportunities for the protection of the archaeological heritage in forest areas. The proposed approach, which integrates administrative procedures and activities with the needs of local communities, is perfectly in with the assumptions of public archaeology, advocating integration of education, protection and promotion of cultural resources, while building awareness and responsibility for the heritage.

In my paper, I intend to discuss the potential of community forests as a synergistic forum for the protection of archaeological heritage strengthening social ties and enhancing responsibility for the cultural landscape. It will present preliminary results of my work on the legal and social frameworks of community forests in terms of their compatibility with the protection of cultural heritage in forests. The ultimate aim of this work is to formulate a framework for the integration of public archaeology into forest management and to outline future activities aimed at strengthening this model.

## Old documentation, new technology. A perfect marriage or fierce enemies?

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Authors: Sonia Tomczak

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Session: Heritage

Keywords: documentation, grave, perception, photogrammetry

Archaeological documentation is never perfect, but as researchers, we continually strive to find new and improved methods to document our fieldwork and findings. At times, the sheer number of options available can feel overwhelming, making it difficult to choose the most suitable approach. While archaeologists can consider various methods when planning new research, what happens to research that has already been conducted? In such cases, certain methods have already been applied, and the documentation has been created.

I would like to present an example of combining older documentation with a modern method. Specifically, I will use documentation created during excavations in Pień between 2005 and 2009. The method I propose to apply is photogrammetry, which, although a widely used documentation technique today, was not employed during these excavations.

In this presentation, I will demonstrate the outcome of repurposing photographs originally taken to document a grave—photos not intended for photogrammetric use—and applying photogrammetry to them. I will explain the process of 'reusing' such documentation and explore whether this combination of old and new approaches can offer fresh insights into previously documented discoveries. Ultimately, I aim to address whether this integration can alter our perception of past findings.

## The Ceramic Roads – compositional analysis of pottery and the ancient Maya trade routes

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Session: Landscape

Keywords: Ancient Maya, Archaeometry, Compositional Analysis, Neutron Activation Analysis, Pottery studies

The Preclassic period (1500 BC – 250 AD) is the most enigmatic period in ancient Maya history. Although archaeologists have studied the material culture of the ancient Maya peoples for more than a hundred years, the research was focused on more recent and well-known Classic period (250 – 1000 AD). Only in the past two decades, with the discoveries of new monumental Preclassic sites – this focus started to shift. Currently, we know that the Middle Preclassic (1000 – 400 BC) period was the time during which the Maya civilisation emerged. The rise of civilisations usually comes with emergence of long distance exchange networks. Following that assumption, we can say that cities should occur the most on the crossings of trade routes.

Hypothetical trade network can be generated using least cost path algorithm in GIS. Based on a 3D topographic model it can calculate the best path from point A to B. Although useful, it requires database of luxury goods and their provenance. In case of the most archaeological cultures one of those goods is fine ware ceramics, which place of origin can be estimated using type-variety method. Compositional analysis is the other method, which can help us with estimating artefacts place of origin. By comparing the atomic composition of different pottery samples, we can determine their probable provenance. This compositional data can be obtained using multiple techniques, but in this presentation will focus mainly on neutron activation analysis.

## Preliminary study of the agricultural structure of the Chuquibamba Valley in pre-Hispanic times

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Session: Landscape

Keywords: Andes, cultivated area, Peru, pre-Hispanic agriculture, spatial analysis

The valley of Chuquibamba, located in the province of Condesuyos, department of Arequipa, is densely covered with cultivated terraces and archaeological sites. It has been the subject of few research projects. The first studies of the valley were carried out in the 1930s. These were continued by various researchers in the second half of the 20th century. The aim of this presentation is to present the preliminary results of the agricultural structure of the Chuquibamba Valley in pre-Hispanic times. The spatial analyses were carried out on the basis of satellite image data, comparing them with the data available from research carried out in this area in the 20th century by various researchers. The combination of data provides us with the opportunity to begin a discussion of changes in the organisation and distribution of agricultural terraces and accompanying infrastructure throughout pre-Columbian times.



## **‘You’ll be home in time / Before night falls over the roads ... hey’ - A brief look at the road network in the Bystrzyca and Sleza river basins.**

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**Session:** Landscape

**Keywords:** Communication routes, early Middle Ages, settlement analysis, trade routes

Although the areas of present-day Poland do not belong to the territory of the former Roman Empire, and we have no examples of roads built by them, modern roads often reproduce the course of those of thousands of years ago. Similarly, on a smaller scale. When we walk on the paths leading to the sites where we carry out our excavation research, the chances are good that we are walking on the same trails as the former inhabitants of the archaeological site. Like us, for their daily journeys, they chose the easiest and shortest routes. Based on these factors, I am attempting to identify the locations of the most accessible routes using GIS software. In seeking such patterns, I discover previously unrecognized sites with features of human activity, such as fortified settlements. Issues of the density of early medieval treasures also contributed to the consideration of ancient roads, which, in the region I studied, clearly show where the routes of the south intersect with the west and east.

An overview of reflections and settlement analyses for reconstructing communication routes in the early Middle Ages south of Wrocław.

## Spaces of an Empire: Space Syntax Analysis Meets Late Assyrian Architecture

Authors: Jannis Werner

Affiliation: University of Cologne

Session: Landscape

Keywords: Assyria, Digital and Computational Archaeology, Near Eastern Archaeology, Space Syntax, Westasian Archaeology

Space syntax analysis, originally developed for modern urban studies and architecture, has proven its potential in investigating ancient urban and architectural contexts. This paper builds on this foundation by applying space syntax methodologies to the architecture of Late Assyrian palaces.

The primary aim is to challenge traditional interpretations by quantifying spatial configurations and perceptions through computational analysis. The goal is to provide an objective perspective to complement and contest interpretations shaped by subjective viewpoints. By focusing on the palatial complexes of the Neo-Assyrian Empire, this study seeks to uncover new insights into the organization, use, and perception of these spaces, offering a fresh perspective on their architectural and social functions.

The paper will detail the process of applying space syntax analysis to this archaeological context, highlighting the challenges and limitations encountered when adapting computational tools to ancient architecture. Despite these challenges, the paper showcases the benefits of integrating computational approaches with traditional archaeological research.

The results of this application will provide a new computational viewpoint towards the spaces of the Neo-Assyrian Empire, which can be compared with traditional interpretations. By bringing space and its perception into a computational framework, this research contributes to a deeper understanding of how architecture functioned as an active agent in shaping ancient societies.

This paper underscores the value of combining innovative methodologies with archaeological inquiry to expand our knowledge of the past and refine our interpretation of its material culture.

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## Spatial and temporal distribution of strongholds in the Wierzyca River Basin

Authors: Weronika Bałdyga

Affiliation: University of Warsaw

Session: Landscape

Keywords: Ciepłe, early Middle Ages, stronghold, Wierzyca River

During the early Middle Ages, Slavic settlement expanded rapidly in northern Poland. Archaeological research in the Wierzyca River basin (Eastern Pomerania) has identified approximately thirty strongholds dating from the 7th to the 13th century, along with settlements, necropolises, points and settlement traces.

The study area spans approximately 1,603 km<sup>2</sup> and is distinguished by a dense hydrographic network, with the Wierzyca River stretching 151.4 km and tributaries such as the Mała Wierzyca, Wietcisa, Piesienica, Węgiermuca, and Janka. The recorded sites were consistently located near watercourses, as rivers played a crucial role in settlement development and political organization.

Settlement formation began in the 9th century, initiated by tribal groupings. During the 10th and 11th centuries, with the growth of the Piast State, there was a notable expansion of Piast settlements in East Pomerania. In order to solidify their authority, they commenced the construction of centres of power.

The sites in question date from a variety of centuries, as evidenced by the following examples: Gniew and Janiszewo (9th–10th centuries), Owidz (11th century), and Ciepłe 1 (12th–13th centuries). The strongholds exhibited a variety of terrain, extents and site forms. To the present day, the majority of the sites have survived only in fragmentary form. Most of the sites have not been subjected to comprehensive archaeological investigation, although targeted studies have been conducted at select locations.

Landscape analysis using GIS software was employed to examine the role of these centers in the past. Techniques such as kernel density, viewshed analysis and least-cost path analysis were applied to interpret spatial relationships and the strategic importance of these sites within their natural and cultural landscapes.

This research illustrates the complex relationship between environmental factors and human activity, offering insights into the geographical and temporal evolution of settlement and political organisation in the Wierzyca River basin.

## The phenomenon of cloche graves in Lower Silesia: a case study of an unpublished cemetery in Dobra (Oleśnica district).

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Authors: Adrianna Dołbizno

Affiliation: University of Wrocław

Session: Poster Session

Keywords: cemetery, cloche graves, early Iron Age, Lower Silesia, Pomeranian Culture

The early Iron Age cemetery in Dobra, site 2, Oleśnica district, was discovered accidentally in 1930 during earthworks. It is situated at the eastern bank of the Dobra river. The results of the excavations have never been fully published. A minimum of twelve cremation burials of the Pomeranian culture were discovered, with three of them identified as cloche graves. Burials of this type consist of a cinerary urn covered with a large cloche vessel. In some of the graves metal objects were found, such as pins, tweezers and an iron fibula with bird's head on the foot. The fibula originates in late LT A phase and it is the most sensitive chronological marker at the site. Along with the other artefacts and forms of the graves, it indicates that the cemetery was in use in the early Pre-Roman period. In Lower Silesia, cloche graves are an uncommon find, recorded only at eleven locations. They usually occur in small numbers, as seen in Dobra. The discussed cemetery is a valuable example of cloche graves phenomenon in the Pomeranian culture context in Lower Silesia.

## The role of metal funerary masks in burial rites in the Balkans during the Iron Age.

Authors: Aleksandra Wiśniewska

Affiliation: University of Wrocław

Session: Poster Session

Keywords: Archaic Age, Funerary customs, Gold death masks, Identity, Iron Age, Social Structure.

This paper explores the roles of funerary masks during the Iron Age, focusing on princely graves of men and women at Trebenište, Ohrid "Gorna Porta", Sindos, and Šipka in the Central Balkans. The study aims to highlight the diverse functions of these masks within their respective funerary traditions. Using a comparative method, the research analyzes common elements and differences in burial customs across various communities. This approach also examines specific features on the masks, potentially aimed at depicting the true face of the deceased. The key finding suggests that funerary masks may have served as tools of social elites to maintain their authority through mysticism and religious beliefs. These elites solidified their power by controlling trade between the south (Greece) and the north (Eastern Hallstatt culture), often through votive objects that added layers of mysticism and spectacle to funeral rites. In archaic Macedonia, masks seem to reflect ethnic identity rather than personal features. They were created in similar forms and styles, with little emphasis on individual traits—features like prominent cheeks were likely coincidental. In contrast, the mask from the Swatitsa grave in Thrace exhibits more individual characteristics, suggesting a stronger personal identity. This supports a connection between Mycenaean Orphic traditions and archaic practices. Additionally, different archaeologists interpret these masks quite subjectively, such as Bulgarian scholars linking them to Thracian funerary traditions. Overall, funerary masks played diverse roles in Iron Age burial customs, blending ritual, symbolism, and social identity, and reflecting the broader cultural and religious practices of the time.

## Cracking the shell: Genetic analysis of a calcified abdominal cyst

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Authors: Alicia Muriel

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Session: Poster Session

Keywords: aDNA, diseases, metagenomics

Calcified cysts are not a common find in human remains. Due to their stone-like appearance and fragile nature, these organic “eggs” can be difficult to identify and analyse. Most studies that have focused on cysts from archaeological sites have followed a morphological approach, with no genetic analysis being performed because of the low DNA content. In this project, working with a calcified cyst found in the abdominal cavity of a skeleton from the 17th or 18th century from a site in Poland, we extracted ancient DNA and analysed it for the detection of pathogens associated with the formation of cysts. After discarding the presence of tapeworms, we focused on the presence of *Campylobacter*, a bacteria that can be found in soil but is also associated with gastrointestinal diseases. Authentication analysis will provide a better picture of the relevance of this bacteria in the formation of the cyst.

## Statistical Analysis in Archaeology: example of correspondence analysis of Western Lithuanian grave goods

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Authors: Andrius Janionis

Affiliation: Lithuanian Institute of History

Session: Poster Session

Keywords: correspondence analysis, statistical analysis, Viking period, chronology, swords

Archaeology is all about data. However, pure data sciences seem to be somewhat neglected in archaeology. Correspondence analysis seems to have a most direct application in archaeology as a method of relative chronology. Grave complexes in Western Lithuania are lacking precise dating as well as typological sequencing of Vikings Period grave complexes. Therefore, correspondence analysis seems to be a way to solve both problems. Pursuing a goal to analyze the weaponry (particularly, swords) through the chronological perspective, several grave complexes from roughly 9th-12th centuries in the Western Lithuania were put through a correspondence analysis and the results of this sequencing are presented.

## Changes seen through the lens of ceramology. First look on Early Medieval material from stronghold Cieple 3, Pomerania

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Authors: Ilona Nowosadzka

Affiliation: University of Warsaw

Session: Poster Session

Keywords: Early Middle Ages, Eastern Pomerania, pottery, relative chronology

Cieple site is one of the most important Early Medieval settlements in Eastern Pomerania. So far archaeologists focused mostly on the cemeteries located on the site and the rich burials within them. The three strongholds found in Cieple were excavated sporadically, but in 2023 during the project “The early medieval settlement complex at Cieple: the Piast dynasty's key to Eastern Pomerania” systematic excavations of the site Cieple 3 began. During the 2023 season, more than twenty two thousand pottery shards have been found, eight thousands of which have been a subject of this paper. Based on morphological, stylistic and typological analyses I will try to shed some light on one of many questions posed during this project - “What did the process of cultural changes in the eastern part of Pomerania look like?”. I'll present which elements of the material have changed and what this evolution tells us about craftsmanship in Eastern Pomerania as well as relative chronology of the findings.



## Using old military cartographic data in research of Pogórze Kaczawskie Milling

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Authors: Jakub Fular

Affiliation: University of Wrocław, Institute of Archaeology

Session: Poster Session

Keywords: Cartography, GIS, Hydrology, Landscape changes, Mills

The lecture will be based on the results of research on the cultural landscape of the Western Sudetes in Lower Silesia. I will pay particular attention to various categories of water mills and their relationship to natural conditions. The mills were identified based on military maps from the 13th century and laser scanning. I verified the relationship to the natural environment in the field and using GIS software. The use of several methods and sources, starting from cartography and ending with field vision, allowed to reconstruct the scope and method of using water energy in the specific terrain of the mountains and foothills.

## Antler and bone artifacts from a stronghold in Cieple, Eastern Pomerania: presentation, analysis, and microwear study

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Authors: Mateusz Malesa

Affiliation: Faculty of Archaeology, University of Warsaw

Session: Poster Session

Keywords: Antler, Bone, Cieple, Early Middle Ages, Microwear analysis

The subject of the paper is the review and analysis of bone and antler artifacts from the stronghold in Cieple, Eastern Pomerania, with a particular emphasis on microwear analysis. This settlement is part of a larger complex dating back to the 10th-12th centuries. The paper will focus on reviewing examples of artifacts categorized into six distinct groups: saddle arch linings, combs, conical holders, needles, piercers, and items classified as "various and unidentified." The subsequent section will present the results of the microwear analysis conducted on these objects, with special attention given to observed traces of production and use. The final section of the paper will synthesize these results, drawing conclusions about the role of bone and antler objects in the cultural and economic life of the stronghold. The analysis not only sheds light on the material culture of Cieple but also contributes to broader discussions about medieval craft production and trade in Eastern Pomerania. The study underscores the value of combining typological studies with microwear analysis to achieve a more comprehensive understanding of archaeological artifacts.

## Antler Ornament from the Late Bronze Age and Early Iron Age in Poland: Technology and Style.

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Authors: Michał Stasik

Affiliation: University of Wrocław

Session: Poster Session

Keywords: Bronze Age, , Experimental Archeology, Iron Age, Traceology

In order to answer the question of how circle ornament on antler were made in the Late Bronze Age and Early Iron Age, an experiment will be conducted to determine and identify the tool that was most likely used to make this ornament. The most likely way to use it will also be presented. The experiment is still in progress, so I would like to present the results so far and share the concept and idea for the future. The experiment will consist of creating a similar ornament using tools made of iron and bronze. The appearance of these tools will be based on data obtained from microscopic observations and 3D scans that were made during the examination of the artefacts. At the very end of the work, the results of the experiment will be compared with the results of microscopic observations and, If the traces in both groups are similar, it will mean that the tool used in the experiment was most likely used to make such an ornament.

## Underwater archaeological heritage written in figures: leading archaeological research projects of Wojciech Szulta (1964-2008)

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Authors: Mikołaj Tański, Marta Piotrowska

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Session: Poster Session

Keywords: Bridges; Heritage; Ostrów Lednicki; Underwater Archaeology; Wojciech Szulta

The aim of the speech is to present the biography of one of the pioneers of underwater archaeology, Wojciech Szulta, working at the Institute of Archeology of the Nicolaus Copernicus University in Toruń from 1990 to 2008. Wojciech Szulta's biography is undoubtedly colorful and worth mentioning. Thanks to his interest in the issues of underwater research combined with the skills in the field of geodesy and surveying, which Wojciech Szulta shared with students, his contribution and cooperation with the creators of underwater archaeology: prof. Andrzej Kola and Dr. Gerard Wilke, it was possible to conduct many underwater archaeological expeditions in the most important national heritage sites but also outside Poland (Lithuania, Germany). A permanent trace of Wojciech Szulta's interests is the publication "Bridge crossings in Polish lands in the Middle Ages". Unfortunately, after a serious illness, he died prematurely at the age of 44, his death interrupted the implementation of his ambitious plans.

## Beyond the Megaliths: Towards a Comprehensive Cultural Model for the Funnel Beaker Culture in Neolithic Europe

Authors: Paweł Bernaciak

Affiliation: The University of Edinburgh

Session: Poster Session

Keywords: Funnel Beaker Culture, GIS, Megalithic Tombs, Neolithic Europe, Virtual Environment Modelling

The Funnel Beaker Culture (TRB) of North-Central Europe, spanning 4000–2800 BCE, is characterised by megalithic tombs and regional settlement clusters. Despite decades of research, knowledge remains fragmented, with studies focusing primarily on local groups, such as Kuyavia, West Pomerania, and the recently identified Świętokrzyskie cluster, raging west to Denmark through northern Germany. This fragmented scope has limited our understanding of TRB's broader cultural and environmental dynamics.

This research outlines the conceptual framework for developing a comprehensive, interactive map of TRB cultural landscapes. By integrating regional datasets, geospatial analyses, and paleoenvironmental reconstructions, the goal is to establish a dynamic digital model capable of simulating socio-environmental interactions. Current investigations include GIS-based spatial analyses of megalithic tombs and settlements, incorporating LiDAR, aerial imagery, and geophysical surveys to map TRB funerary and settlement sites across varied terrains. Early findings from Kuyavia and West Pomerania highlight significant correlations between burial sites, resource availability, and topographic features.

The envisioned model extends beyond static reconstructions. It aims to facilitate dynamic simulations, such as analysing the migratory patterns of early farmers, modelling socio-economic interactions, and assessing TRB's ecological impact, including deforestation and soil management. This holistic approach aspires to bridge gaps between isolated regional studies and contextualise TRB's role within the broader Neolithic transformations of Europe.

This poster introduces the preliminary outcomes and methodological underpinnings of this long-term research initiative, advocating for the integration of localised TRB studies into a unified pan-regional cultural-environmental framework.

## The iconographic world in the armor and ceramics of Magna Graecia, the language of images.

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Authors: Rita Solazzo

Affiliation: University Bordeaux Montaigne

Session: Poster Session

Keywords: Magna Grecia, Apulia, Pottery, Armor, images, decoration.

This work proposes an iconographic and technological analysis of two different classes of materials: on the one hand there are the red-figure amphorae and on the other two armor complexes composed of helmet, belt, armor, knees, equine forehead protector, pendants, both from Apulia in the 4th century BC. The study of iconography and its stylistic repertoires allows us to reconstruct the physiognomy of a particular production in a specific cultural dress, and therefore to respond to the problem related to provenance. Furthermore, the choice of certain funerary scenes and mythological themes orient us towards certain types of content rather than others. We know that images convey messages held up by a language belonging to a particular artisan workshop. In the proposed analysis, emphasis will also be placed on the problem of function, and of circulation that implies the analysis of the relationships between senders and recipients.

## Methodological work on the use of electrical resistivity tomography for the study of Neolithic tumulus.

Authors: Rita Solazzo, Vivien Mathé

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Session: Poster Session

Keywords: Tumulus, Electrical resistivity, Anomalies, Iterations

The work presented is an analysis of the acquisition and processing chain of apparent electrical resistivity data obtained during the construction of electrical panels on tumulus. The objective is to identify the origin of surprising anomalies of certain resistivity models obtained after inversion with the RES2DINV software (Geotomo Software). These anomalies appear at the base of the sections and do not seem to correspond to either an archaeological or a geological source. The tests were carried out on Neolithic tumulus in the southwest of France: tumulus C of Bougon, the Petit Dognon in Tusson and the Motte de la Garde in Luxé. The results show that the various electrode configurations used to acquire the data could not explain these anomalies. Similarly, the various treatments to take into account the topography of the sites do not seem to be the cause of these anomalies. On the other hand, it was noted that the most realistic results were obtained for a residual error of the data inversion close to 3%. Below this, the calculated models certainly provide lower errors, but the proposed solutions do not seem realistic from an archaeological or geological point of view. It is therefore necessary to limit the number of iterations of the inversion in order to obtain an informative resistivity model.

## Intercultural relations in South Caucasus based on the study of stamp seals (2nd half of the second millennium BC—1st half of the 1st millennium BC)

Authors: Tamar Chogovadze

Affiliation: Iv. Javakhishvili Tbilisi State University

Session: Poster Session

Keywords: Armenian, Azerbaijan, Georgian Archaeology; Stamp Seals.

The presentation will discuss clay stamp seals discovered on the territory of Georgia, Azerbaijan, and Armenia (second half of the second millennium BC and first half of the first millennium BC) and intercultural relations depended on the example of the study of stamp seals. As it is known, clay seals existed on South Caucasus territory in earlier periods, although they were not as widespread as during the mentioned period. The idea of researching the relation between the stamp seals from the abovesaid territories comes from my PhD research ("Stamp seal discovered on the territory of Georgia (2nd half of the second millennium BC—1st half of the 1st millennium BC)").

During this research, I noticed that there existed many characteristic similarities between the South Caucasian stamp seals. As it is seen, the majority of the aforementioned period stamp seals were unearthed in East Georgia's Kakheti and Shida Kartli regions. But in fact, there exists a visual distinction between the seals discovered in Kakheti and Shida Kartli. It's probably that this difference is linked to reason, that they belong to the two different cultures spread on the territory of Georgia in the mentioned period: It's true that the area of Kakhetian seals distribution fits to the borders of "Ior-Alazani basin culture," and the other seals of East Georgia are discovered in the regions where there has been spread "Samtavro culture." The analysis found the stamp seals discovered in Kakheti form a different group with stamps dated to the same period from Azerbaijan. There are many similarities between Kakheti and Azerbaijan seals. However, the distinctions between seals from the aforementioned regions and those from "Samtavro culture" territories are less noticeable. Stamp seals discovered at Armenian Iron Age sites are similar to "Samtavro culture" seals in Georgia. Furthermore, portrayals, ornamental styles, and body shapes are sometimes identical.



## Griffins and Tendrils in a Late Avar Cemetery from Southeast Hungary

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Authors: Tibor Sztankovánszki

Affiliation: Móra Ferenc Museum (Szeged, Hungary)

Session: Poster Session

Keywords: Late Avar period, Griffins and tendrils, Lions, Southeast Hungary

Near Makó city in the industrial area (Hungary, Csongrád-Csanád County) in 2023 and 2024, parts of a Roman Age Sarmatian, a 7th and a 9th century Avar settlements had been excavated, as well as burials belonging to each period. The aim of this presentation is to briefly analyse the community of the entirely excavated Late Avar cemetery with its 139 individual and to examine seven of the richest male graves and their connections within the Carpatian Basin. The men's belt parts were made of cast bronze (in two cases gilded bronze) and they were decorated with griffins, tendril motifs and only in grave no. 95 with lions. In this period lions are assumed to be one of the rarest ornament on belts. In the cemetery in tomb no. 245 a unique burial rite was revealed: in the mortuary (Totenhaus: ca. 4×2 meter) an armed man with one axe and a bronze belt set (belt mounts with hanging rings) was buried in a coffin next to his mounted horse.

## Early Medieval Nomads in the Territory of BYD Car Factory (Szeged, Hungary)

Authors: Tibor Sztankovánszki (1), Dániel Dr. Pópity (2), Kornél Sóskúti (3)

Affiliation: (1-2) Móra Ferenc Museum (Szeged, Hungary), (3) Hungarian National Museum (Szeged, Hungary)

Session: Poster Session

Keywords: Avars, 7th century, Southeast Hungary, Warriors

Within the area of the new BYD Auto Co. factory near Szeged (South Hungary, Csongrád-Csanád County), a previously unknown Avar Age cemetery with approximately 150 graves had been identified. Our archaeologist team of the Móra Ferenc Museum (Szeged) began to excavate the cemetery at the end of October 2024, which is still an ongoing project. With our poster presentation we would like to briefly characterise this newly excavated cemetery. Based on a preliminary assessment, two-thirds of the cemetery had been excavated so far (in 2024), which can be dated mostly to the 7th century. The cemetery is small in size, but the artefacts make it unique in Southeast Hungary. In the south and west side of the graveyard the abundance of armed men graves deserve special attention (swords, bows, arrowheads and quilts, a young person buried with a mounted horse and a spear), as well as the richness of women's accessories and clothing items (earrings, corollas, collar, rings, belt parts and accessories, etc.), together with numerous decorated bone objects.

## Evidence of Christianization in children's burials on the territory of Western Rus' and the Polish-Ruthenian borderland in the early Middle Ages

Authors: Viktoriya Makouskaya

Affiliation: Faculty of Archaeology University of Warsaw

Session: Poster Session

Keywords: Burials of children, Christianization, Old Rus', Polish-Ruthenian borderland

This research focuses on evidence of Christianization in children's graves during the period of religious transformation. The object of the research was the inhumation graves of children under 14 years of age from the 11th to 13th centuries, located in the northern part of Belarus (the territory of the historical Polack Principality) as well as in the regions of Podlachia and Eastern Mazovia. Various objects with Christian symbols, such as crosses, pendants with encircled crosses, lunulas, zoomorphic pendants, and egg-shaped glazed rattles, found in cemeteries containing children's graves were analyzed.

The main research questions were: Are there any differences in the placement of objects with Christian symbolism between the graves of adults and children? Are there any differences in the placement of such objects in children's graves between the territories of the Polack land and Podlachia and Eastern Mazovia? Did these differences have social and religious significance?

Children's burials constitute a significant portion of the total number of graves containing Christian symbols in both the Polack Land and Podlachia and Eastern Mazovia. However, in the Polack land, the burials of children with these objects are primarily represented by the youngest age group—children up to seven years old. Most likely, these children were baptized at an early age and belonged to one of the first generations of Christians. On the other hand, in Podlachia and Eastern Mazovia, such objects appear in children's graves later, only starting in the 12th century. Pendants with Christian symbols are mostly found in the graves of children older than seven years, which is probably related to the age of receiving the First Communion. Meanwhile, eggs and egg-shaped rattles were placed in the graves of infants and younger children.

## ANTLER ORNITOMORPHIC PENDANTS BY THE KRYVIČY

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Authors: Viktoryia Tarasevich

Affiliation: PhD Student, Faculty of Archaeology, University of Warsaw

Session: Poster Session

Keywords: bird pendants, female attire, Kryvičy, ornithomorphic pendants, the Smolensk-Polack Long Barrows Culture

The union of the Eastern Slavs known from written sources as the Kryvičy associated with the Smolensk-Polack Long Barrows Culture (SPLBC). The culture was formed in the Smolensk Dnepr Region and the northeastern regions of Belarus no later than the middle of the 8 century and existed until the 10 century (in the Smolensk Dnepr Region) and the beginning/first half of the 11 century (in the Belarusian Dzvina Region and the interfluvium of Dzvina and Nioman).

The culture had a peculiar tradition of burial: the burning of the deceased along with a certain set of funerary equipment, among which the female one stands out. There are ornithomorphic pendants among these items, which are considered to be a cultural marker of the Kryvičy. The report presents finds of ornithomorphic pendants of the Kryvičy and determination of their place in the system of female attire.

## Manuports and the first abstract and symbolic thoughts

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Authors: Weronika Wujda

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Session: Poster Session

Keywords: body, manuports, pareidolia, similarities

Hominids created and saw in various natural objects something that has not been there for ages. This thesis is confirmed by manuports – which, in addition to occurring on several continents, are among the oldest manifestations of abstract and symbolic thought, both in the Homo genus and in Australopithecus. In this work, by comparing selected manuports from Africa, Europe and Asia (which were chosen due to the availability of sources), I would like to point out their similarities, but also to raise the issue of pareidolia and references to the appearance of the human body of hominids, and thus to the fact that despite the fact that some people take away their abilities of self-awareness and self-realization, they certainly had to have this self-awareness and therefore had to know what they were looking at, recognize it and be able to imagine how it could be improved (if necessary).

## Early medieval stronghold at Cieple reveals a 17th-century war story: earthworks, bullets, and headless burials

Authors: Wojciech Bakiera

Affiliation: Faculty of Archaeology, University of Warsaw

Session: Poster Session

Keywords: burials, Medieval Period, Pomerania, stronghold, war

The paper explores the occurrence of mysterious burials within a late 10th- to early 12th-century stronghold in Cieple. Initially, the burials were considered early medieval and were associated with a cemetery that emerged after the stronghold's decline. However, radiocarbon dating has dated the burials to the 16th-17th centuries. The study examines six burials discovered during excavations in the 1970s and more recently in 2023-2024. Anthropological analysis identified the age at death, biological sex for adult individuals, and pathological changes in the bones. Some pathological changes and potential causes of death were also examined. Evidence suggests a connection between these burials and the Battle of Gniew in 1626, supported by radiocarbon dating and nearby remnants of earthworks. These fortifications align with historical accounts of the battle. However, it remains unclear whether the burials belong to battle casualties or represent earlier interments disturbed during the construction of the fortifications. This research highlights the intersection of historical events and archaeological findings, emphasizing the importance of further investigation.